EXCLUSIVE CONTRIBUTIONS

Donations to the National Museum.

In the April number of this magazine we published an appeal to the dentists of this country to make donations to the Dental Section of the Army and Navy Museum in Washington.

In response to this request we have received some very interesting specimens, which are quite worthy of a place in the Museum, and which will, undoubtedly, prove valuable to dental students in the future.

The following is a partial list of the specimens received up to date, some of which are herewith illustrated with the hope that other dentists throughout the country will be moved to ransack their cabinets, and for-

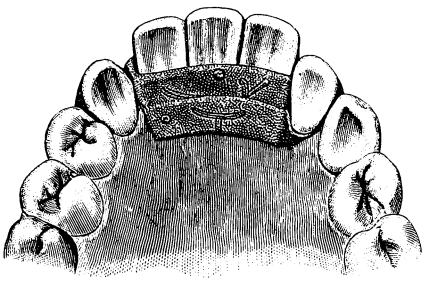


Fig. 1

ward to us for deposit in the Museum whatever they may find which is anomalous or in any way curious.

Dr. Joseph Spyer, City of Mexico, Mexico, makes the following donations:

No. 1. Models showing his methods of making his adhesive plate, one showing the manner of attaching the adhesive plate to a plaster cast, together with a finished plate; also model with automatic suction cavity placed in position on the cast; this likewise accompanied by a finished plate.

He also sends:

No. 2. A piece of home-made bridge work on plaster model, showing the exact condition of the mouth with teeth—four upper natural incisors attached with a peculiar gum, the gum being indigenous to the tropical part of Mexico. (See Fig. 1.)

He furnishes the following history of this case: "In 1886, now some twelve years ago, a Mexican Indian woman about forty years of age, came to our office for the purpose of having a plate with four front upper teeth. Upon examining the mouth it seemed that she was joking, as no teeth appeared to be missing, but on a closer examination it proved that the four front teeth were attached to the vegetable bridge, as seen on the plaster model, the root of the canine being inserted in the alveolus of the same, and attached with ligature to the bridge. She

FIG. 2.

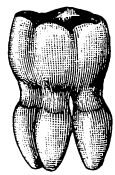


FIG. 3.

FIG. 4

informed me that the fixture had been in her mouth for fifteen years, and the only inconvenience she experienced was the occasional renewal of the ligature"; also

No. 3. A lower central incisor almost completely covered with calculus, the mass being one-half inch thick. (Fig. 2.)

The following donations were sent by Dr. Carl Klein, Jr., 398 Wells street, Chicago, Ill.:

No. 4. An upper left bicuspid extracted from the mouth of a young man, aged twenty. This specimen appears like the temporary teeth which are shed because of the eruption of their successors. The specimen had no root, in the proper sense of the word, there being merely a slight bit of cementum extending above the gum line, with no appearance whatever of any true pulp chamber. Dr. Klein believes that the pulp of the tooth died before the formation of the root had been completed.

No. 5. Upper cuspid, one and three-eighths inches in length. Extracted from the mouth of the corpse of a man in dissecting room of Chicago College of Dental Surgery;

No. 6. Upper central incisor, having an extra root throughout its entire length, along the distolingual edge;

No. 7. Upper left bicuspid with three roots;

No. 8. Upper right first molar, all three roots showing hypercementosis. (Fig. 3);

No. 9. Upper third molar having four roots.

From Dr. W. Cureton, Pocatello, Idaho, we have received:

No. 10. A perfectly formed bicuspid tooth, one-quarter of an inch in length from apex of root to extreme tip of the longest cusp. Removed from the mouth of an adult, all of whose teeth were in position in the arch. This beautiful little supernumerary was taken from the anterior buccal surface of the gum.

FIG. 5.

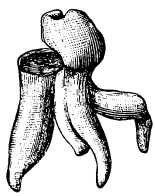


FIG. 6.

FIG. 7.

Dr. Henry H. Way, of St. Thomas, Ont., makes the following donations:

No. 11. Lower central and lateral incisors united throughout. (Fig 4);

No. 12. Superior cuspid having a supernumerary cuspid firmly attached to the root. (Fig. 5);

No. 13. Superior molar having four roots, one with extraordinary crook. (Fig. 6);

No. 14. Superior twelfth year molar with wisdom tooth firmly attached to the apices of the roots. (Fig. 7);

No. 15. The roots of a superior molar showing fully calcified pulp;

No. 16. Inferior bicuspid and inferior lateral incisor showing caries of the root reaching almost half way to the apices, the crowns being intact;

No. 17. Anomalous wisdom tooth, root being shorter than the crown;

No. 18. Specimen of old-fashioned wood pivot tooth, the root having been extracted with the artificial crown;

No. 19. Substitute for four lower incisors carved out of wood by a patient;

No. 20. Specimen of continuous gum work, made by Dr. Allen Way, father of the donor, who then resided in Kennett Square, Chester Co., Pa. This specimen (Fig. 8), was made not later than 1854, and is all porcelain, there being no metal base;

No. 21. An upper denture made by Dr. Allen Way. The plate is of German silver struck up on a zinc die. The six front teeth are in one block, the bicuspids

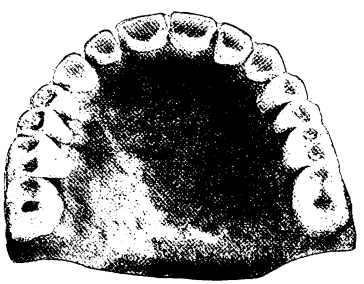


FIG. 8

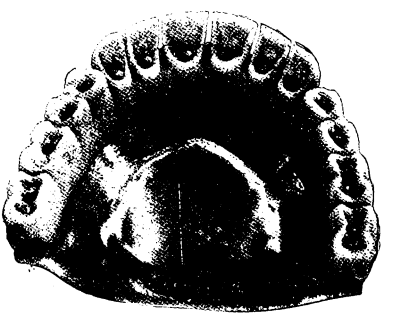


FIG. 9.

and molars on each side being also in a single block. These teeth were carved and baked by Dr. Allen Way. Through each tooth a hole was left, and the tooth was attached to the plate by headed pins which passed through these holes and through the plate, to which they are soldered. (Fig. 9.)

Dr. J. F. Galentine, of Cleveland, Ohio, makes the following donations:

No. 22. Dens sapientiæ having perfectly formed supernumerary molar crown attached to the side of the root. (Fig. 10);

No. 23. Superior canine, 1⅜ inches long;

No. 24. A bicuspid with crooked root.

(To be continued.)

FIG. 10.

A Case of Empyæmia of the Antrum of Highmore.

By Otto Bickel, D.D.S., New York.

The relation of the diseases of the maxillary sinus to pulpless teeth has been a theme for earnest study, and the knowledge of this established fact is but an acquisition of modern dentistry.

Whilst formerly "facial neuralgia" was a welcome name for pain in the region of the face when we were at a loss to trace it to its fundamental cause, we have nowadays greatly extended our intellectual horizon by taking into consideration the above-mentioned relation.

How important it is for the dental practitioner, in making the diagnosis of a somewhat inevident neuralgia, not to forget the antrum Highmori will be proven by a case from practice.

Mrs. H., from Minneapolis, called at my office, complaining of neuralgia in the head. The examination of the mouth showed a very defective grinding apparatus as to the number of teeth. The few remaining teeth had been well cared for, the root of the right upper canine carrying a well made Richmond crown with the missing lateral attached to it.

The space from which the lateral incisor had been extracted showed a remarkable loss of alveolar substance, and in the most sunken part of the process, I found the opening of a fistula with degenerated margin, freely secreting an ill smelling fluid. The breath was fœtid and patient looked very anæmic.

The crowned root did not react when sounded with a steel instrument. The central incisor of the same side proved to be an unquestionably healthy tooth.

The anatomy of the canine root was plainly visible, as the two neighboring teeth had been extracted, and the grooves in the alveolar process on both sides of it showed the graceful form of the root to the best of advantage.

The soft tissue around the apex was not swollen and not painful to the touch. Parulis was therefore excluded. Here I wish to impress upon the reader the fact that, in cases of a doubtful diagnosis, the examination with the finger will always decide the "issue of the battle." So it did in the case in question.

Regio infraorbitalis and *planum faciale* were found quite swollen.

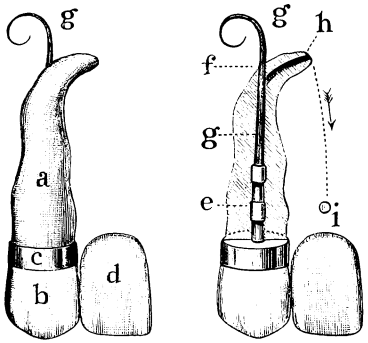
Patient, when questioned as to the discharge from the nose, had not noticed such, but a discharge took place in the back of the mouth.

I suspected empyæmia of the antrum of Highmore, supporting my diagnosis thus:

The pus generating from purulation of the canine periosteum had penetrated the alveolar process, and taking its way through *meatus narium medius* had found entrance to the antrum. This explained the pain in the antral region.

As to the fistulous opening, I deduced that part of the pus, following the down stroke of its own weight, and looking for *locus minoris resistentiae*, had formed the fistula.

Through further questioning, I found that the tooth had given trouble before, and had been treated and crowned again. Soon after treatment the fistula had appeared, and for a long time had been medicated from the outside without apparent success. I advised the extrac-



a. ROOT
b. PORCELAIN CROWN
c. GOLD-BAND
d. ATTACHED LATERAL
e. METAL-POST
f. FALSE OPENING
g. RED GUTTA PERCHA
h. SEPTIC PART OF ROOT-CANAL
i. OPENING OF FISTULA

tion of the root, which operation, when performed, presented a picture as illustrated.

In order to remove the septic contents of the pulp chamber, a false opening had been made, and the drill had entered the antrum. The upper part of the canal had been filled with red gutta percha and the opening into the antrum was large enough to allow a considerable part of the filling to enter in the maxillary sinus, being a source of constant irritation to the lining of this cavity.

The patient had to leave New York, therefore I had no chance to proceed with the treatment, but I do not doubt that the nasal catarrh and the ear trouble which accompanied the pain in the antrum, are only secondary diseases and will disappear with the successful treatment of the antrum.

I do not wish to close without emphasizing the fact that the dental work in Mrs. H.'s mouth showed the hand of a skilful dentist. The disastrous consequences of a false opening have never shown better, or rather worse, than in the described case.

Simplex Electrodes.

By S. L. GOLDSMITH, D.D.S., New York.

Many complex electrodes have been introduced to facilitate cataphoric medication, all of them more or less weighty, some expensive and some difficult to apply.

FIG. I.

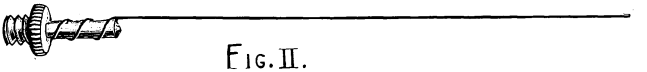


FIG. II.

FIG. III.

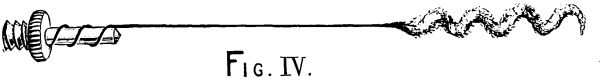


FIG. IV.

FIG. V.

These objections may be overcome, I think, in the following simple and inexpensive manner. Unscrew the end of the wire which is usually attached to the mouth electrode heretofore used, then obtain from your electrician a number of the parts marked "A" in Figure I. Some manufacturers furnish wires with ends which cannot be unscrewed; in such a case the whole metallic end should be cut off and discarded and such a one as described attached. Almost any bell electrician can do this and also furnish the ends which cost about five cents per pair.

Now take one of the ends (Figure I., "A") and attach a piece of platinum hair wire, about four inches in length to it with soft solder, as shown in Figure II. You have now made an electrode applicable to nearly all varieties of cavities and root canals. The method of applying a medicament with such an electrode is to wrap cotton on the platina wire just as is done on a root canal bristle (Figure III.), then form this cotton, which has a core of platinum wire, into a coil by wrapping it around any straight instrument (Figure IV.).

This coil may be packed into any cavity and will not only completely fill the cavity, but is also rigid enough in many instances to retain itself indefinitely; in any event the addition of a silk ligature will be all that is required.

In labial cavities the coil may be flattened out and retained with one or more revolutions of floss silk around the tooth to be anæsthetized.

Zinc Electrodes.

The cataphoric application of chemically pure zinc to root canals is recommended in the treatment of blind abscesses, etc. The difficulty, however, in obtaining a proper zinc electrode has been the reason why many have not adopted this method. Pure zinc may be had at the large wholesale drug houses in rods about a quarter of an inch in diameter and some seven inches long. These rods are put through the plate rollers, which have previously been cleaned as well as possible with alcohol, and flattened to a thickness of No. 12 standard gauge, then cut into lengths of two or three inches. These are again cut lengthwise and filed as small as may be desired, and with a jeweler's soldering iron attached to one of the ends before described (Figure V.).

For Polishing Plate Work.

By Dr. T. Ledyard Smith, City of Mexico, Mex.

For quickly cutting down or rough polishing rubber or gold plate work, I find no better method than with the porte polisher, run with the dental engine.

By removing the nut, a strip of three-fourths of an inch wide sandpaper or emery cloth may be slipped in the slot, and run as the same would be in a regular polishing lathe, only, this device run by the engine offers a more delicate result, as the instrument and handpiece are manipulated on the plate instead of the plate being manipulated against the polisher, as in the case with the lathe. The difference makes the result very different, and the operation almost a pleasure.

A plate may be rendered ready for a final polish in a very short time, and without the use of file or knife, and with a result clean, delicate and artistic.

Migration Velocities of the Ions of Hydrochlorate of Cocaine.

By Weston A. Price, D.D.S., Cleveland, O.

The following data was received too late to appear in its proper connection in the paper on "The Foundation Principles of Dental Cataphoresis," which appeared in the May Items.

Professor Morley's investigations covered many weeks, and considerable hard laboratory work, in order to determine the velocity of the negative ion of cocaine. Chemically pure materials were essential, and required special apparatus for making. His determinations show that the complex positive ion which goes to the negative pole, has a migration velocity in dilute solution of not far from one-tenth that of the negative ion Cl. or of na. He believes the molecule of hydrochlorate of cocaine, $C_{19}H_{27}NO_4HCl$. to dissociate $C_{19}H_{27}NO_4H$. forming the positive ion, and Cl. forming the negative ion. The migration velocity of Cl. is known to be 0.00069 cm. per second at a potential gradient of one volt per cm.

This means that the alkaloid would travel into tissue about one inch in one hour with twenty-five volts difference of potential across the tooth. Of course the circulation in soft tissue, as the pulp, would very materially hasten the dissemination.

One Way to Make a Gold Crown.

By Dr. L. West, Monett, Mo.

Fit the band to the root of the tooth, contouring as required, and place in position. See where it needs altering to give proper occlusion, and with a half round file, or other suitable tool, cut away a little more than is necessary to prevent striking against the occluding tooth.

Fit a cap of crown plate to the end and solder. Trim off the edges and replace upon the root, and mark the places where the cusps should be to give proper contour to crown and allow proper occlusion, etc.

With a round, sharp-pointed instrument make some small pits in a sheet of asbestos corresponding to the sizes of cusps desired, and with the blow pipe melt the required quantity of gold scrap to form each cusp, and while melted quickly place the handle of the pliers, or anything suitable, on it so as to flatten the top, making small inverted cones.

Place these cones properly upon the cap of crown where cusps are desired, solder to place, and finish as usual.

This way of making a gold crown I found to be the quickest, and gives a more natural contour than any I have tried. It is especially applicable to bicuspids, and gives a greater thickness to the wearing part than the method of fitting to a bite does.

Oxide of Zinc and Eugenol.

By Dr. S. Blair Luckie, Chester, Pa.

In the March issue of the Items of Interest, in the report of the Committee on Materia Medica, from the New Jersey State Dental Society, there appeared under the name of "pulpol," a description of a new medicated cement for pulp capping, the claim being that it is non-irritating, a bad conductor of heat, and a powerful antiseptic and anodyne, the chief ingredients being oxide of zinc and eugenol. Its consistency should be less than doughy; will harden in from five to fifteen minutes so that a filling can be introduced. It also has the property of hardening as well under saliva as if kept dry.

I do not wish to claim priority of use, but feel constrained to testify to the satisfaction I have derived from a mixture of oxide of zinc and eugenol alone, not only as an intermediate stratum between the floor of deep seated cavities and the filling, but as a covering to dressings, especially when it is desirous to avoid pressure, and also as a filling where a non-irritating, thermal protector and antiseptic is designated.

If properly mixed, that is, as much of the oxide used as the fluid will take up without becoming crumbly, and a good article of zinc used (I use Hubbuck's), a filling can be inserted that will last as long as the best cement. In the mixing, a condition will appear as though no more of the oxide could be added without producing the crumbling alluded to, but by patting the mass with the spatula, plasticity will return. It will harden more rapidly in the mouth than on the mixing slab, and will retain its quality as a filling material better in the tooth, as what remains

of the mix becomes brittle after the lapse of time, while the filling will present good margins and show comparatively good edge strength.

I have now had an experience of over four years with it, and have noticed that fillings in the approximal surfaces of molars and bicuspids will show no wasting in the least for one, and in some cases, for two years.

It can also be used as a pulp canal filling, by being pumped in the canal and forced to all parts with a cone of gutta percha, filling the canal antiseptically and producing no irritation beyond the apex.

Gutta Percha Lining Under Cement.

By CHARLOTTE E. BENTON, D.D.S., New York.

Replying to Dr. W. E. Driscoll in the June ITEMS OF INTEREST, I would say no one can have more respect than I for cement as a basis for gold work, used while plastic, as described by Dr. Ottolengui, and also as a substance in which to drill undercuts, after it has hardened. I also use it in the same way in connection with alloy, and as a strengthener for weak walls I can echo his praise of it.

But I never use it in large cavities without a lining of Hill's stopping. This can be spread as thin as tissue paper and prevents the slow but sure death of the pulp from the action of the phosphoric acid.

This result is not always suspected after it has taken place, as usually the pulp is atrophied and entirely absorbed, and the root canals remain empty without giving any trouble or the tooth changing color sufficiently to attract attention.

I use cement as a basis much more frequently than tin, but my sense of propriety is too Washingtonian, and my respect for my eyesight too great for me to do otherwise than reaffirm that I *did see* "large labial cavities in central incisors connecting with cavities in the distal sides extending to the cutting edge," filled with tin below and gold outside, and the cavities were too extensive to permit the use of even a thin lining of Hill's stopping, and without this lining I am quite sure the cement would be far more irritating to the pulp than the tin.

I cannot use Dr. Shumway's instruments, nor am I the expert he is, but I can apply his principles, and I can pack tin where I cannot pack gold. I may sometime learn to do it, as I seldom use the term "impossible," for it is a word which I believe will sometime become obsolete.

Practical Application of Appliances for the Correction of Oral Deformities.

By Dr. Frederick R. Sandusky, Nashville, Tenn.

In the correction of oral deformities, mechanical skill together with sound judgment often tends to reduce an otherwise complex problem to simplicity itself.

No operator who undertakes the correction of irregularities of the teeth, can succeed creditably without the thorough co-operation of both child and parent, therefore the primary step should be the assurance of such help before beginning operations. Next in order is the study of the nature of the case in hand. A comprehension of the disposition of the patient, and a knowledge of the part played by the law of heredity assists greatly in the practical treatment, for hasty measures are irreparable; therefore, such means of correction as the extraction of permanent teeth (unless known by the operator to be a necessary step), should be given very careful consideration, and resorted to only when absolutely demanded.

I respectfully submit a few models of irregularities, and the methods resorted to in the correction of each case. I have selected these cases, believing them to be such as the busy dentist comes in contact with almost daily, and such as he should be able to correct without the slightest hesitancy. Photographs of the models and exhibition of the appliances used are offered, hoping to be of service to some one who has not given this branch of the work special study.

No. 1.—Miss W., aged sixteen.

As shown in the model, the crowded condition of the arch has forced the eruption of the right cuspid out of line, and crowded the right lateral incisor inward, until the lower teeth closed between cuspid and lateral. The occlusion was perfect except the deformity involving the cuspid and lateral.

First step in the procedure was necessarily the extraction of the right bicuspid; a model taken and the usual base plate of wax made with

a Lee-Bennett jackscrew set in position, as shown in the model. A platinum tooth pin was set a little back of the first molar for attachment to rubber ligature, then a 24 K. No. 30 gauge gold half cap was swaged from a model taken from the cuspid, and to the palatal side of this a

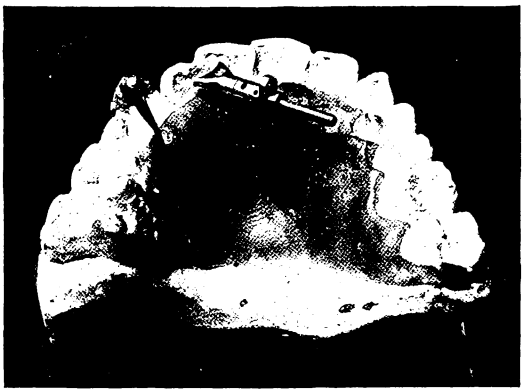


FIG. 1.

tooth pin was soldered for the anterior attachment of the rubber ligature for retraction of the cuspid, the fixture was placed in position, jackscrew tightened, rubber ligature adjusted, and in about three weeks the case was perfectly corrected. The result obtained by this appliance could not be improved upon, yet the construction is quite simple.

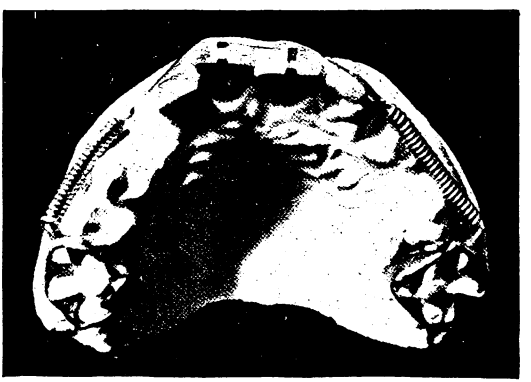


FIG. 2.

No. 2.—Master C., aged fourteen.

As shown in the model, the lateral incisor has been forced inward, and the position assumed by the central and cuspid made it necessary to obtain space through which to force the lateral. There is no better

appliance for such a case than the one shown on the model, for which we are indebted to Dr. Angle. Very thin German silver is used for the tension strip (as it has to pass between the teeth). Two hollow tubes are soldered to the ends of the strip—one perpendicularly and the other horizontal—for the reception of the right angle and straight ends of the screw bar. This fixture is placed on the teeth in a comfortable position and the nut tightened towards the cuspid—merely tightening the nut each day will afford the desired result, and accomplish in one-fourth the time the same result as could be obtained with vulcanite plates, piano wires, etc. This case was dismissed in ten days, and yet the movement of the displaced tooth was not sufficiently fast to endanger the life of the pulp.

No. 3.—Miss S., aged sixteen.

This model presents a case requiring double rotation without the separation or removal of any of the teeth. The result is accomplished with the aid of an exceedingly simple yet very effective appliance.

FIG. 3.

Narrow gold bands of gauge 36 are made to fit the widest portion of each of the central incisors; then platinum tooth pins are soldered to each of the mesial approximal surfaces of the bands, to which a simple rubber ligature is attached so as to bring about lateral tension; the bands must be firmly cemented on the teeth before the ligature is applied. It seldom requires more than two weeks to obtain the desired result with this appliance, and its simplicity of construction and ease with which it is worn, makes it a most valuable appliance for double rotation.

No. 4.—Master C., aged twelve.

This is a case of excessive protrusion of the anterior teeth above, and at a glance would suggest much difficulty in its correction, but with the appliance used as shown on the model, the case was easily reduced to one which offered the same result as the others mentioned.

I would not have started upon the correction of this case until the

eruption of the cuspids had taken place, but as previously stated, it was a case of excessive protrusion with both arches normal posterior to the bicuspids, and with ample room for the cuspids to assume their normal position upon eruption. The corrective appliance was constructed as follows:

Pure gold of gauge No. 30 was used for bands for the molars, and a loop of gold wire was soldered to the anterior buccal surface of each of these for the rear attachment of a gold spiral spring—the anterior ends of the springs being attached to the ends of a narrow gold bar which extended around the anterior teeth, having previously had short

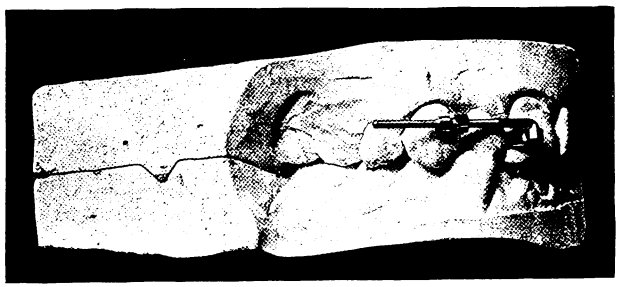


FIG. 4.

gold hooks soldered so as to be bent under and burnished to the palatal surface of the centrals to hold the bar away from the gum. The bands were cemented firmly on the molars, and every second day the hooks were cut and new hooks formed, shortening the springs and increasing the lateral tension.

I offer these suggestions (claiming no originality) to those who claim an interest in orthodontia, and suggest that simplicity and common sense judgment in the arrangement of appliances should be the foundation from which to work to the reward of successful operation.

SOCIETY PAPERS

The Antrum of Highmore.

By C. M. PALMER, D.D.S., Charles City, Iowa.

Read before the Northern Iowa Dental Society, Mason City, September, 1897.

Contributing Causes of Antral Disease.

No doubt the most common cause of inflammatory processes within the maxillary sinus, is to be sought in dental caries. In this connection it is important to note that the size of the antrum is inconstant, and therefore, although disease of the first and second molars is the most common factor of irritations, yet in case of an exceptionally large cavity, caries of the incisors, canines and posterior molars may lead to a similar result.

Next in frequency, but numerically far behind dental caries, we must consider nasal disease. Probably sometimes a direct extension of the inflammation occurs from the mucous lining of the nose. It must, however, be remembered that obstructions of the normal orifices of communication may lead to pressure within the antrum, and finally exudation, which may decompose and cause inflammation.

It is by no means uncommon to find empyæmia of the antrum associated with nasal polypi, but in a certain number of such cases I believe that the antral affection is the primary lesion, and that the polypi are the result of the flow of irritating pus over the nasal mucosa. Certain general diseases may lead to the same result, according to Prof. Kuchenbaker and others—scarlatina, typhoid, erysipelas, diphtheria, and syphilis; extraction of teeth has also been known to be followed by empyæmia of the antrum.

Inflammation of the maxillary sinus appears under two clinical aspects, according as the secretions are retained and the symptoms of tenson are present; or second, the inflammatory products have free drainage into the nose.

Diagnostic Symptoms.

Inflammation of the antrum. It is hardly necessary to spend time on the consideration of the condition which is so freely discussed in works on general surgery. The patient complains of severe pains in the cheek, and in the teeth of the upper jaw. The whole region of the antrum is extremely tender, and at this stage sudden relief may follow a profuse serous or purulent discharge from the nose. If the retained matter fails to find an exit, the osseous walls are distended, sometimes pointing occurs toward the mouth; oftener the external wall of the corresponding nasal cavity is bulged, and occasionally the floor of the orbit becomes pushed upwards, resulting in the misplacement of the eyeball.

It is of the utmost importance that this form of disease should be recognized and treated. The symptoms complained of vary considerably. Sometimes advice is sought for chronic cold, and the unilateral character of the discharge has quite escaped the notice of the patient. Occasionally the chief features seem to be obstruction of the nostril on the affected side, due to the swelling of the mucosa resulting from constant irritation set up by the flow of pus. A subjective sensation of bad smell, and occasionally bad taste, when secretions descend into the mouth, are symptoms which can almost invariably be elicited by leading questions, and which are sometimes mentioned voluntarily. Pain is not uncommonly reported, but it is usually situated in the frontal and supraorbital regions. Occasionally it is paroxysmal, and in all respects resembles simple neuralgia.

This symptom is probably due to swelling of the orifice of the frontal sinus, and depends in a measure on air in this cavity. In a certain number of cases, the beginning of the symptoms can be traced to a severe attack of toothache, followed by swelling of the face, and where this history is present, diagnosis is much facilitated. Assuming that the patient comes to the dentist on account of the unilateral discharge, it is usually found that the symptom is most marked on first rising, and again in the case of those engaged in office work, on sitting down to write. Sometimes the patient observes for himself the fact that it occurs more copiously when lying on the opposite side. Sometimes there is a certain amount of tenderness on pressure over the region of the affected cavity, and occasionally the gum on the corresponding side is distinctly congested.

Perhaps the most effective means of diagnosing the presence of pus in the antrum, is to make an exploratory puncture with a hypodermic syringe, armed with a strong needle, through the outer wall of the nostril. Aspiration through the normal orifice is recommended by some.

I do not think that any method which requires this can be looked upon as satisfactory, because the manœuvre is often impracticable.

Percussion by means of a piece of wood placed beside the first molar is another method. Trans-illumination is useful. An electric lamp of about five candle power is placed by means of a specially constructed tongue depresser, in the patient's mouth. The scene takes place in a dark room. Prof. Garel has pointed out that if the patient's eye be shut while the electric light is within the mouth, the luminous impression is perceived through a healthy antrum, but not when the cavity contains pus.

As to the best method of opening the antrum, authors are divided in opinions. As we have seen the root of the evil in most cases, is to be sought in a carious tooth or stump, and this must certainly be removed. A favorite method of treatment is to open into the cavity through the socket of an extracted tooth. Some recommend to open through the canine fossa.

Cases from Practice.

Before leaving the subject of inflammatory affections of the antrum, it may be well for me to refer to some cases that have come under my hands in the few years of my practice.

Case No. 1.

Mr. A., forty-five years old, a farmer, one month before had a left superior wisdom tooth extracted by an M.D. He had no trouble from the extraction until about two weeks after; since that time pains have been increasing, cheeks swollen; came in for me to extract the twelfth year molar. Upon examining the case, I found the twelfth year molar sound in every respect; found a little pus oozing out of the socket of the third molar that had been extracted; took my probe and passed up into the opening through into the antrum. On removing my probe quite a quantity of pus escaped. I enlarged the opening, and in doing so discovered some foreign substance in the antrum, and taking hold of it with my pliers, could not remove it. I then took a thin beaked forcep, and to my great astonishment, removed the third molar. I washed out the antrum with a warm solution of boracic acid, followed by peroxide of hydrogen, and dismissed the patient after three visits.

Case No. 2.

Miss C., eighteen years old, living in the country, had trouble with her teeth all her life; nothing left but old roots; had been complaining of pain in the left side of her face for about a year; her cheek was swollen at times; discharges from the left nostril for the past year. She was much afraid of a dentist, but came to see me one year ago last June. Upon examination I found all the roots on the left side of her superior maxillary float-

ing in pus, cheeks swollen, eye partly closed; removed the roots, found part of the floor of the antrum necrosed, scraped away all the necrosed bone I could find, washed out with tepid water followed by five per cent. carbolic acid, and dismissed the patient. The second treatment on the third day was a tepid boracic acid solution followed by peroxide. After six visits the patient was finally dismissed, cured, nor has she had any trouble since. Five months later, put in a full set of upper teeth.

Case No. 3. Miss B., twenty-two years old, lives about nine miles in the country, had a partial plate of teeth two years before. Her sister came to me and reported that she could not wear her plate on account of a sore mouth. I told her to send her sister in, and upon examination of the mouth, I found on the alveolar ridge, about where the second bicuspid belongs, a spot about half the size of a silver five-cent piece, of a dark brownish color, and in appearance like a blister. I made an incision of half an inch, and there flowed out about a tablespoonful of brownish exfoliation; took a large spoon excavator, scraped all the necrosed bone, washed out with five per cent. carbolic acid solution, followed by peroxide of hydrogen. Treated her five times. I got her a small syringe and mixed her a bottle of boracic acid, instructing her to warm the solution and wash out once a week for a few weeks. The case recovered.

Case No. 4. It has fallen to my lot to have three cases of antrum trouble due to syphilis. I shall not dwell at length on the symptoms connected with this disease, but will simply report the cases.

Mr. A., a stout young German, age twenty-eight, infected with syphilis six months previous to visiting me, complained of pain in the cheek. I diagnosed empyæmia of the antrum, and at once extracted a molar. On drilling into the cavity, an immense quantity of pus escaped. As he was taking treatment from a physician, I simply cleansed the cavity daily with peroxide of hydrogen, and a one to one-thousandth solution of bichloride of mercury. The recovery was rapid.

Another case was similar in every respect to the one just mentioned.

Case No. 5. One morning a young Swede called on me suffering from toothache, the first superior right molar being affected. I extracted it and heard nothing more about the case till the following week, when the physician called upon me to drill into the antrum. I could not make an opening from the cavity of the tooth just extracted, but extracted the superior second bicuspid, and without any trouble opened the antrum. The discharge of pus was very profuse and the stench frightful, so that doors and windows had to be opened. On passing a probe into the antrum, I found

the bone entirely denuded, and an opening through the roof leading into the orbit. Using a fountain syringe with a bichloride solution, I proceeded to cleanse the cavity, when to my surprise the fluid flowed out through the nostril and also from the opening in the upper eyelid. The eyeball was simply floating in pus. I washed out the cavity thoroughly twice a day, with very poor results, and the lad, thinking he would not recover, decided to return to Sweden, which he did. On his arrival in his native land, he was taken to a hospital, where the superior maxilla was removed, and the destructive process still keeping up, the last I heard of the case was that the doctors had decided to remove the eye and clean out the orbit.

Diseases of the Peridental Membrane.

By C. M. PALMER, D.D.S., Charles City, Iowa.

Read before the Northern Iowa Dental Society, Mason City, September, 1897.

We are all familiar with the construction and function of the peridental membrane of a tooth, which acts as a cushion against the hardships and severe blows it is liable to receive in the performance of tearing and grinding food.

As this membrane receives its blood and nerve supply from the same source as does the tooth pulp, it will be easily seen that any trouble which would impair the health of that membrane would also affect the enclosed pulp, and instead of having one trouble there would be a complication.

This membrane is the medium through which the cementum and adjacent tissues receive their nourishment. It is also the organ of touch, and the only one possessed by the tooth; in fact, it can well be called the vital storehouse from which, or through which, renewed forces are constantly supplied.

This membrane is subject to various forms of disease, among which there are several distinguishable varieties of inflammation which arise from distinct causes, and require different treatment. They may be classed as: Traumatic pericementitis, or inflammation of the peridental membrane resulting from an injury; apical pericementitis, or inflammation of the peridental membrane, having its seat in the apical space and following the death of the pulp; alveolar abscess, which always has its seat in the apical space, and is the result of apical pericementitis following the death of the pulp; gingivitis, inflammation of the gingival border of

the gums and neighboring border of the peridental membrane, occurring mostly from constitutional causes; calcic inflammation of the peridental membrane, a diseased condition caused by deposits of calculus about the necks of the teeth.

We may well divide our classification of this subject into two distinct groups; one having its exciting cause in the apical space, and the other at the gingival margin.

Apical Pericementitis.

Apical pericementitis together with the alveolar abscess which follows, is the most painful affliction to which the teeth are liable. This trouble always begins in the apical space, and in the immediate neighborhood of the apical foramen. It never occurs during the life of the pulp of the tooth, nor does it necessarily follow immediately after the pulp's death, as it may occur months or even years after. However, no tooth with an empty pulp chamber is safe from apical pericementitis.

One instance in my own practice. I had occasion to crown a central incisor. After removing the remains of a gold filling, I proceeded to uncover the pulp preparatory to its removal, but to my surprise there was no sense of pain. As the operation advanced, the canal was opened and found to be as free from pulp tissue as though it had been removed by the usual means. Upon further investigation I found the canal to be perfectly sealed at the apex, and the chamber apparently as dry and sweet as could be made. After thoroughly sterilizing the canal, the same was properly filled and the crown set, which has been doing good service for three years. How long the tooth would have remained in its former condition cannot be known, but to all appearances it was in a perfect state of preservation, yet I am convinced that sooner or later serum would have percolated the canal and caused inflammation in the apical space.

The question has arisen that, if micro-organisms must be present before putrefaction can take place, how do they make their way into a pulp chamber when there is no external opening? However this may be, the fact remains that such decompositions do occur.

We are often called on to diagnose cases, and to decide whether they be apical pericementitis or inflammation of the dental pulp. We will find in cases of diseased pulp, the affected organ does not become tender to the touch, at least not until the inflammation has passed through the apical foramen, thus causing apical inflammation. If we but remember that the peridental membrane is the only sense organ of the tooth, we will see that if pericementitis be the trouble, the pain will be reflected definitely to the particular tooth; when in case of pulpitis we are often uncertain as to the exact location of the pain; but if we bear in mind the

function of the two organs, there will be but little difficulty in rightly diagnosing these cases.

The peridental membrane being the organ of touch, therefore definitely locates its ailments, when on the other hand, the pulp of the tooth is not an organ of touch and therefore does not definitely locate its ailments, but is prone to cause reflected pain, which may indeed be to distant parts. This seems to be characteristic of those organs that have no nerves of touch, as, for example, we find in case of hip-joint disease that pain is reflected to the knee.

Another important point is the fact that the dental pulp is especially sensitive to thermal changes, and this responsiveness is much increased in diseased conditions, when on the other hand the peridental membrane has no such special sensitiveness.

There seems to be but one condition in which thermal changes cause marked pain in acute or chronic apical pericementitis, and that is in cases when the pulp chamber of the tooth is filled with gas, so as to cause pressure on the tissues of the apical space, when the application of heat will give rise to an expansion of the gas which will create a greater pressure and pain, while the application of cold, would, in this case, give relief.

I was once called to go seven miles to see a young lady who was suffering from a troublesome molar. The only relief afforded her was by holding ice water in her mouth. This very fact at once suggested the seat of trouble, and under the circumstances the only permanent relief that could be given was to remove the tooth, which I did, and immediately all pain ceased and sleep was afforded.

Alveolar Abscess.

Just a word as to abscesses. Litch says an alveolar abscess results from inflammation having its seat in the apical space proceeding to the formation of pus. So we are to understand that this trouble, in its inception, is always in the apical space, no matter where it may afterwards extend.

It is quite true we may have an abscess occurring on the side of a root of a tooth, as a result of an injury and not from the death of the pulp, but such would be known as a traumatic alveolar abscess.

We find two classes of alveolar abscess, known as acute and chronic.

The latter may be formed as the result directly from chronic apical pericementitis, without having acute inflammation present at any time. Indeed, the change may have taken place so quietly and caused so little disturbance, that the patient will have had no knowledge of the affected tooth even having been sore. The tooth may not be decayed at any

point; its pulp may have died from any of the diseases to which it is liable, and yet may present the appearance of perfect health.

As to the burrowing of pus in the acute and chronic forms of alveolar abscess it is not true as is generally taught, that pus always burrows in the direction of the least resistance, forming an exit at the nearest point to the surface. Often in cases of a chronic nature, pus will be found following muscles and ligaments, even to remote parts.

Gingival Diseases.

We now come to consider the diseases of the peridental membrane having their origin at the margin of the gum. This group of diseases opens to us a subject that would afford material for volumes, so we will not mention the minor divisions and subdivisions, but will speak briefly of them in a more general way.

I know of no more important duty that confronts us in the art of dentistry, than to ever be on the alert to relieve our patients of any trouble that will surely cause a loss, besides giving much annoyance if allowed to remain. I am sure those of you who bear the title of our profession will agree with me that the study of these troubles is too much neglected, even in our dental colleges. To be sure we are instructed along these lines, but it is in a general way and is apt to be covered by the term pyorrhea alveolaris, which means very little in itself, for there may be a score of byways leading to as many causes and modes of treatment.

Is it not a fact that we are daily consulted regarding some feature of this trouble, and how often we do not give our patients all they are entitled to? Many times our only excuse is that it is not a desirable operation to perform, and again it may be owing to the small fee we usually receive for length of service rendered.

Not long ago a lady came to me for advice concerning her teeth, and upon examination I found the lower incisors to be very loose, and especially were the centrals so badly affected that they were giving much trouble and required removal. Apparently these teeth were perfectly sound, but they were completely surrounded by a calcic deposit which had caused the absorption of the alveolus to such an extent that a calcic deposit had formed quite the full length of the roots. This lady had been under the care of one dentist for fourteen years, and at this time had been told that she must lose all her teeth.

There is little doubt that simple gingivitis is often the starting point of the more grave diseases of the peridental membrane, and may begin from neglect in properly cleansing the teeth and oral cavity, and in time will cause an eversion of the gums, which favors the lodgment of calculus, and a little later inflammation of the peridental membrane.

Calcic inflammation is one of the most grave diseases, not that it is so very difficult to manage when rightly understood, but from the great number of cases that occur and its destructive character. My observation teaches that it is causing the loss of more teeth than is caries.

We have the two forms of calcic formation, viz., serumal and salivary.

The latter is derived from the saliva that exudes from the tissues in a state of disease, and is uniformly deposited under the free margin of the gums but not beneath them. When a slight deposit has once taken place it becomes an irritant, which will in itself perpetuate the disease, as it seems to possess peculiar irritating qualities which keeps the adjacent gums in a state of chronic inflammation which my continue many years, but finally we have a deepening and widening of the disease until the peridental membrane becomes affected to such an extent that it is finally destroyed, exposing the necks of the teeth, and as fast as the membrane is detached from the roots, the rim of the alveolar wall is absorbed and the gums recede with it.

As these conditions continue, the peridental membrane becomes more diseased, pockets are formed, and we have both forms of calculus taking place; all the symptoms become more aggravated, and there is a continual flow of pus from the necks of the diseased teeth, which gradually become loosened and require removal.

It has been the aim of this brief paper to call attention anew to some of the many diseases to which the surrounding tooth structure is heir, and to inquire whether or not it is not a fact that we too often neglect making a careful study of these cases and treat accordingly, but extract many teeth which might be made to do good service for many years.

Office and Laboratory

Office and Laboratory of Thomas P. Hinman, D.D.S., Atlanta, Ga.

In the equipment of an office, the dentist, above all other professional men, should use the most exquisite taste and care.

Is it not true in dental operations that half of the pain suffered is in anticipation?

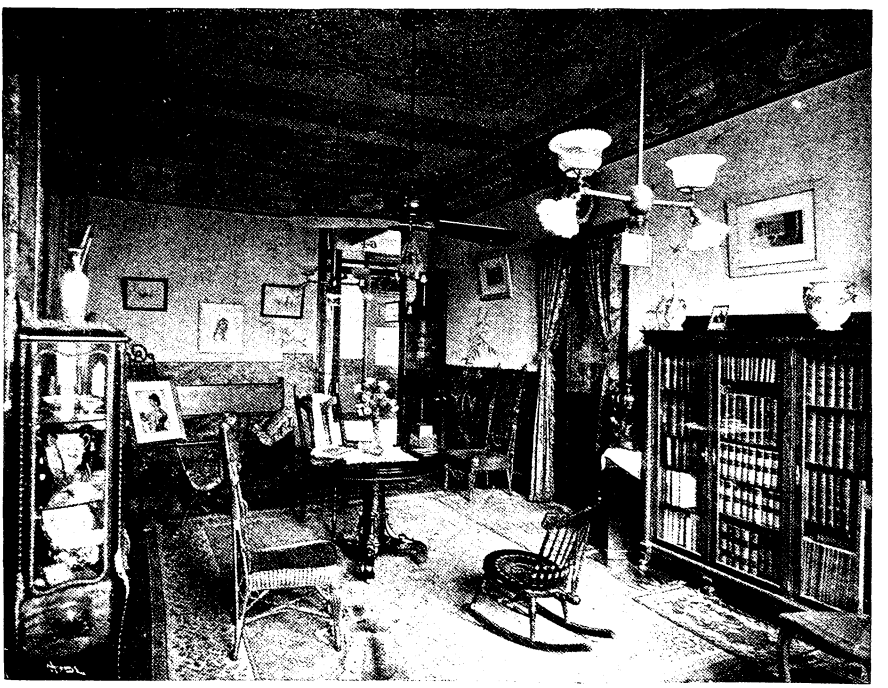


FIG. 1

Nothing in the reception room should indicate to the patient's mind what is contained in the room used for operative purposes, but should tend to amuse and carry the mind as far as possible from what is taking

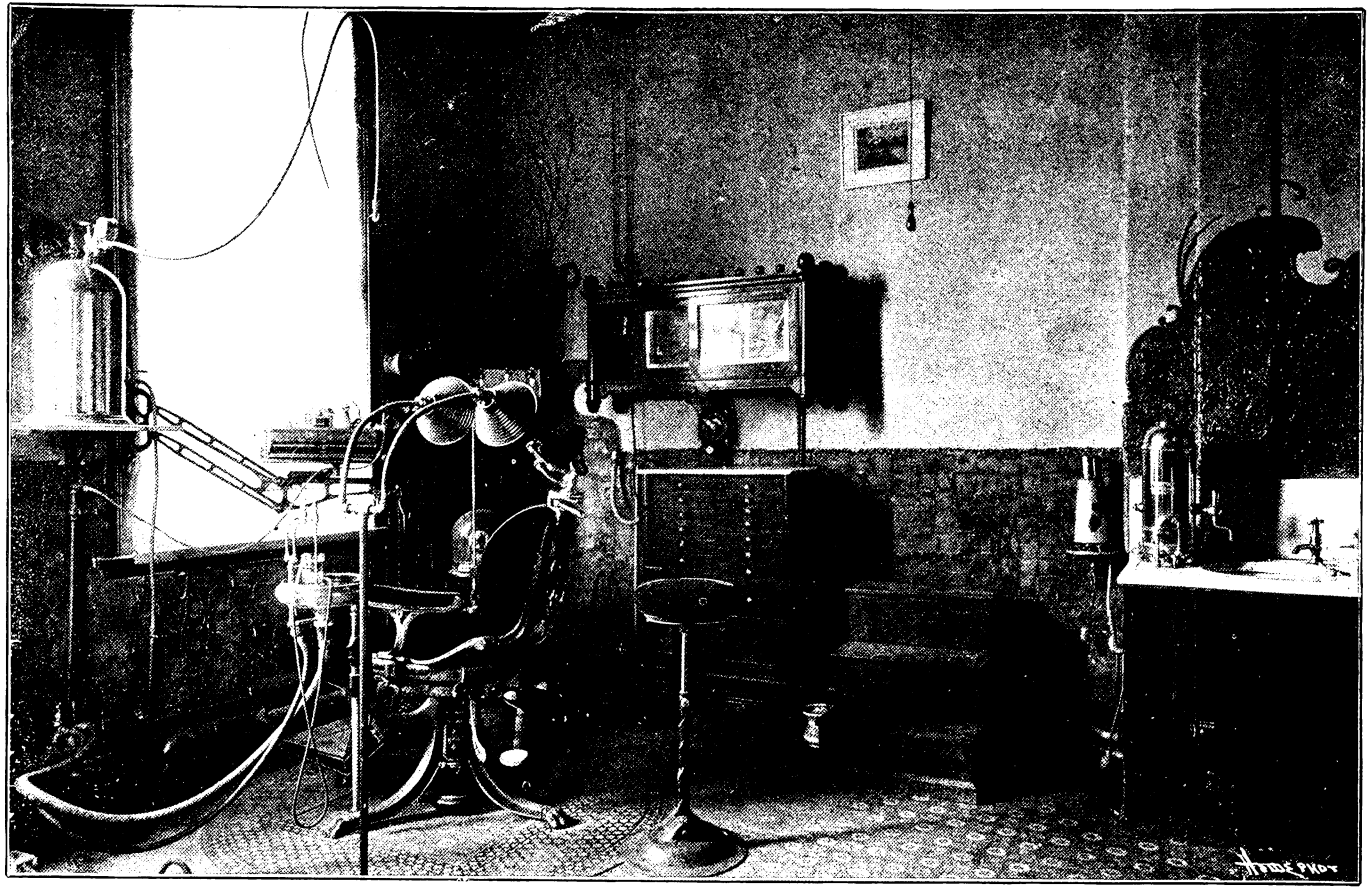
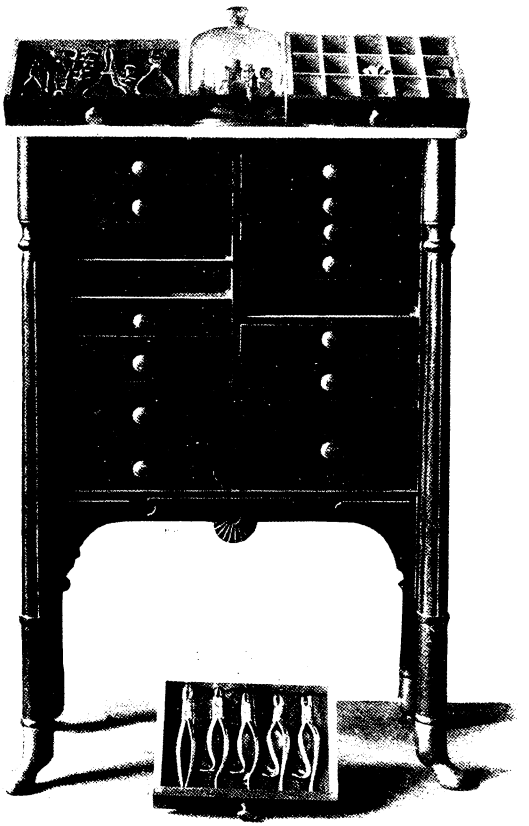


FIG. 2.

place, or what he or she may expect to take place when in the chair dreaded by so many.

My reception room (Fig. 1) has been especially designed to be pleasant to the eye, and contains nothing suggestive of dental operations.

The operating room (Fig. 2) is fitted up especially with a view of shortening operations, and has some quite unique features. Of these I wish to say a few words in explanation. These ideas are not all my own, but some have been gathered from my professional brethren in various parts of the United States.



I will take up first the operating cabinet, designed and built to my order. Dimensions, 3 feet 6 inches high, 27 inches long, 12 inches deep.

Each drawer is devoted to some set of instruments; the illustration shows one drawer exclusively for separators and rubber dam instruments, each instrument with a place cut to fit so that it is impossible to misplace or lose one without the instant observation of the operator.

The next drawer is one devoted to disks, and is partitioned into small square openings made to hold one box of disks; the box of sandpaper disks being emptied into its proper place, the same size cuttlefish are emptied into the next one, so there can be no mistake in the grit being used and no trouble in opening boxes or removing disks from a pin on which it had been transfixed, as is the method of some. When the drawer is open every size and grit of disks is in full view of the operator.

Three drawers are devoted to extracting forceps, and each forcep has a place cut to fit it. The first drawer is devoted to lower teeth, second to upper, and third to root forceps and elevators. So I can with my back to the cabinet select any forceps I desire.

The cabinet is so placed that it can be easily reached from either position the operator may assume, that is to the right or left side of the patient. The top is made of marble and is flat so that it can be used for mixing amalgam, cement, etc.

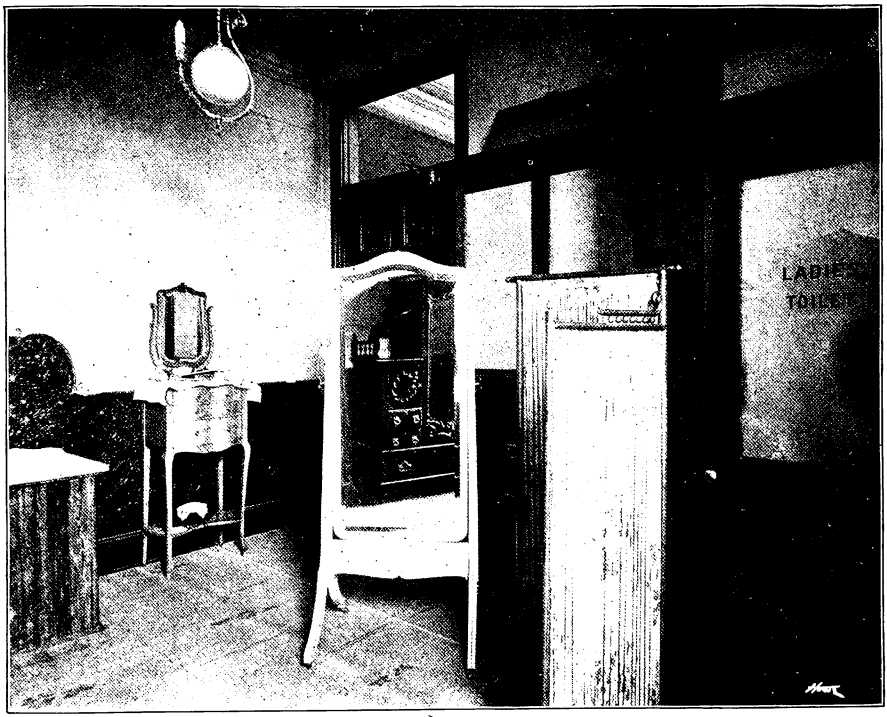


FIG. 3.

The electric cabinet is attached to the wall and is independent of the instrument cabinet, but is directly above it. It contains a rheostat controlling the electric mallet, mouth lamp, cautery, and hot air syringe. It is fitted with sliding plate glass doors so that when closed it seems only a double mirror; all the unsightly cords being hidden from view.

Above and a little to the side of the cabinet is placed a Lamsen carrier often seen in stores. It runs to the laboratory which is across the hallway, and is used to carry small packages back and forth from the operating room.

A speaking tube close at hand serves to communicate with the laboratory assistant. For instance, in making a crown, after the measure is taken it is placed in the carrier and shot into the laboratory, and then the assistant instructed by means of the speaking tube as to the width of band desired; when made it is returned and fitted, cusps articulated and then it is sent back for final soldering and polishing.

In the corner to the right of the chair is a small medicine cabinet filled with cut glass bottles. The bottom, side and back are lined with

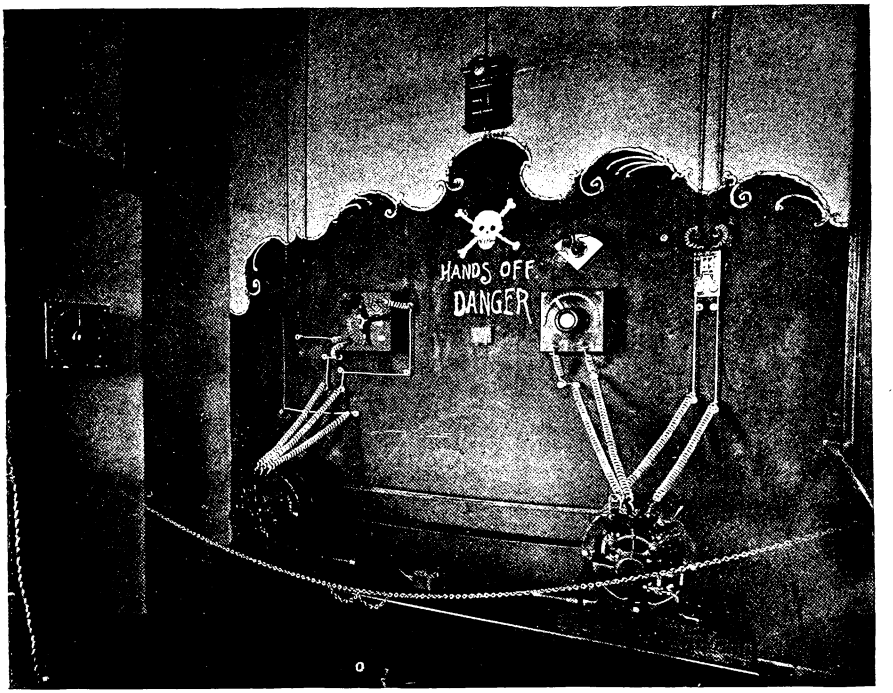


FIG. 4.

mirrors, and the top has three small electric lights so arranged that when the door opens they light up.

The cataphoric instrument is attached to the wall nearby so that the milliampere meter is easily read by the operator.

To the left and in front of the chair is a tank holding compressed air (20 pounds pressure) and from it a flexible tube runs to the chair. This tube having a small valve at the end, is suspended by a cord which runs through the ceiling and is attached to a window shade roller, so

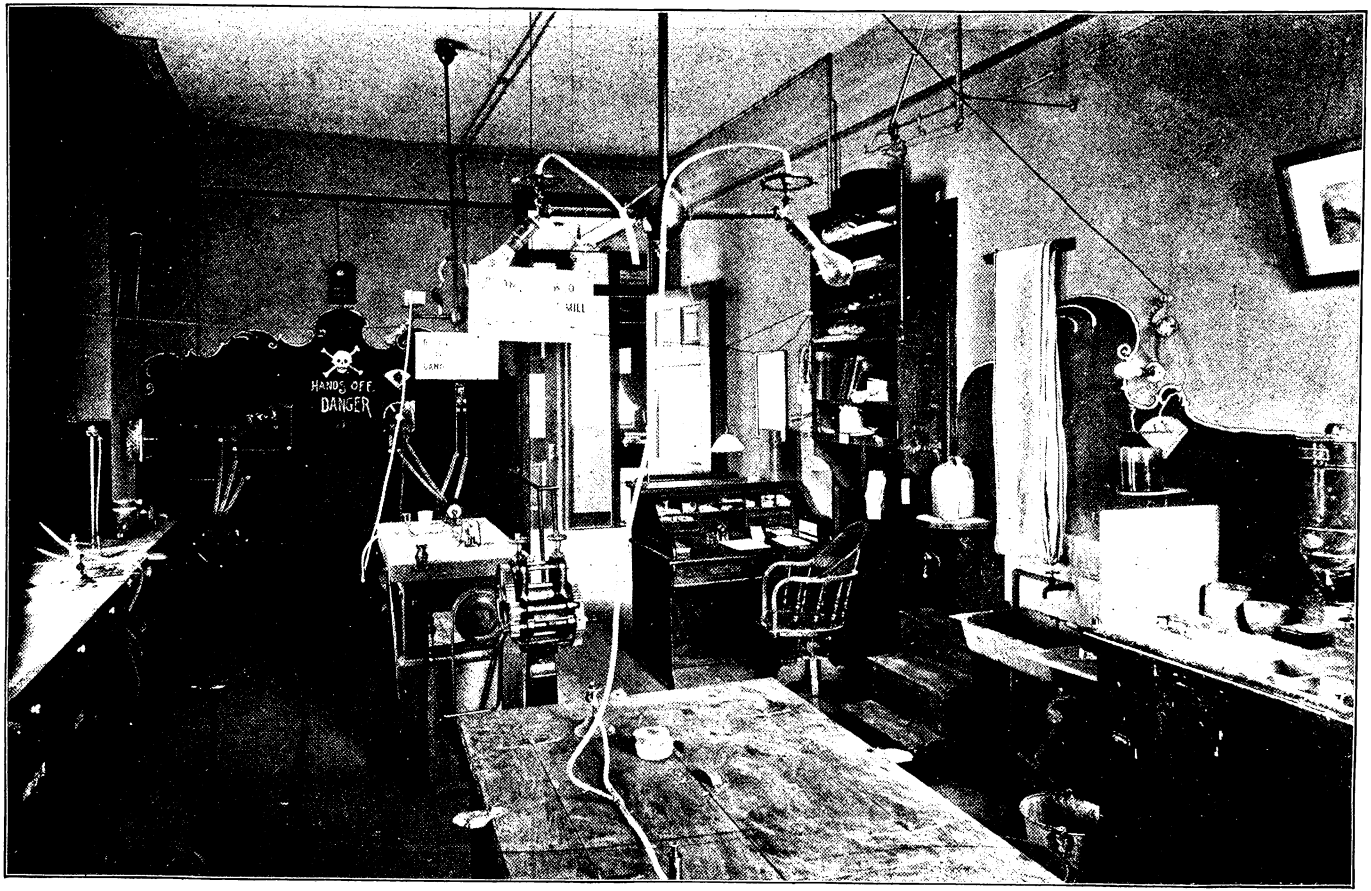


FIG. 5

when not in use it is drawn up out of the way when released from the hands of the operator. The electric lamp is suspended in a similar way.

My electric lamps for dark days are seen at the left, and consist of two 16 power incandescent lamps with powerful reflectors fitted with flexible arms, which arms, when placed in a position, remain so. The whole is on a movable base which gives a wide range of light-position.

The electric engine, fountain spittoon with saliva ejector, are easily seen and need no explanation.

The wash-stand to the rear of the chair is fitted with an instantaneous water heater which is lighted up by electricity.

The sterilizer is to the left of the wash-stand.

Around the chair is placed a rubber mat so that the operator stands on a cushion; I find this is much less fatiguing than to stand on the hard floor or linoleum.

Directly back of the operating room is fitted a ladies' toilet room (Fig 3). The door into it is opened by an electric button operated from

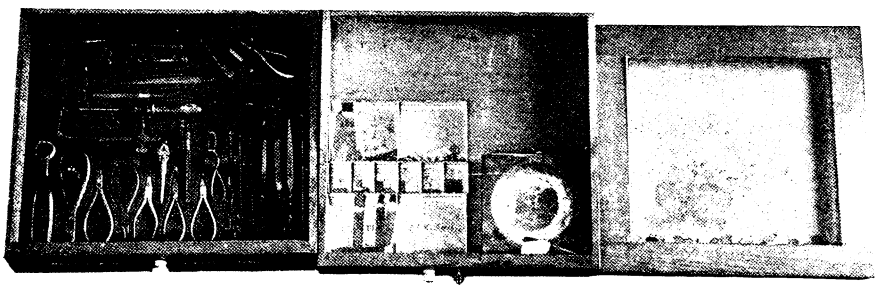


FIG. 6.

the cabinet. This room saves much valuable time, for while you might be waiting for a lady to put on her hat and cloak (she now being in the dressing room) you save five or ten minutes.

Laboratory and Motor-Generator (Fig 4).—My motor-generator is used to reduce five hundred volt current to one hundred and ten volt, as we have no one hundred and ten volt street current in this city.

My Laboratory (Fig. 5) is fitted with electric lathes, furnaces, etc. The blow pipes and furnaces are run with compressed air.

The tops of the laboratory tables are flowed with Portland cement about one inch thick; this prevents burning, etc.

The drawers of the laboratory tables have false bottoms, which are cut to fit each instrument, and the gold and solder trays are made of tin, each karat having a separate place, as seen in illustration (Fig. 6). Under the gold drawer is a small drawer frame fitted with a removable

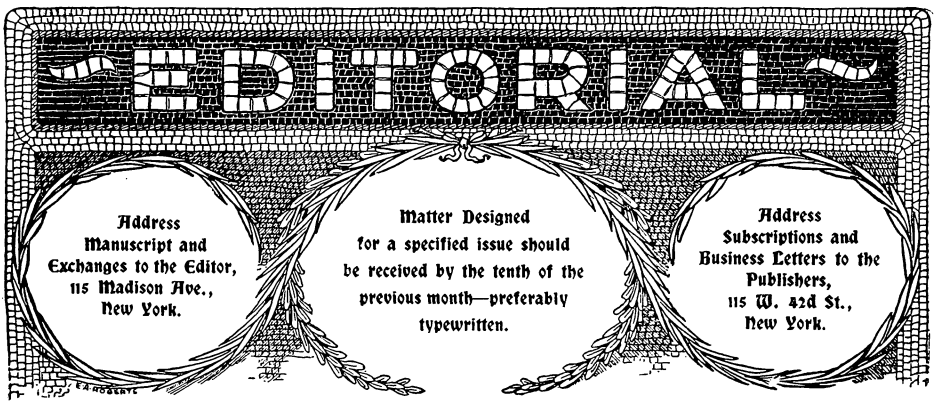
tin tray; this is used to catch the filings and sandpaper disks used in polishing bridge work.

Another place is similarly fitted for vulcanite work. The vulcanizing is done with an automatic vulcanizer, a time saving apparatus.

The plaster is worked on a glass top table having a square hole in the center through which the excess and trimmings are swept and caught by a barrel underneath.

The operating, reception room and laboratory are all fitted with overhead electric fans. The doors have automatic closing devices which prevent slamming.

There are many things in my office and laboratory, the details of which are omitted, as I fear to consume too much space. But I hope that this description will prove a valuable aid to some few at least.



Dental versus Oral Surgery.

PHYSICIAN (to patient with anchylosis): "I cannot open your jaws until you have that abscessed wisdom tooth extracted."
DENTIST (to same patient): "I cannot extract that tooth until you can get your jaws open."

The medical schools, when graduating a man, confer upon him the degree Doctor of Medicine. A certain number of those who obtain this degree practice what is known as general surgery. These men, without any distinguishing title which would indicate skill in a special direction, stand ready to operate upon any portion of the human anatomy, whether it be for the removal of an ingrowing toenail, a leg, an arm, a uterus, or a maxillary bone.

The dental schools, when graduating a man, confer upon him the degree Doctor of Dental Surgery. What number of those who obtain this degree, which specifically announces surgical skill of some sort, stand ready to perform any truly surgical work?

Or, to word the question differently, what is the limitation of dental surgery?

Perhaps, if we adhere rigidly to the fundamental meaning of the words, the dental surgeon operates only upon the teeth. A more elastic view would include operations upon the tissues to which the teeth are attached, as for example, the gums, and alveolar processes. But the advanced (or advancing) dentist of today claims the right to administer internal remedies, thus crossing into the field of general medicine, at least where he can show that such remedies as he exhibits are salutary,

if not necessary to the treatment of those dental lesions which bring the patient to him, rather than to the general practitioner.

If this be a fair assumption, and not presumption, why should not the dental surgeon elect to perform any surgical operation within the mouth, of which he may feel that he is capable?

If instead of what ought to be, we ask what are, the limitations of the dental surgery of today, the answer is more readily discoverable. It may seem an odd definition of surgery to say that it involves the loss of blood, but the truth is, that only such surgery as does cause a loss of blood causes the tyro to hesitate. If arms and legs could be severed from the living subject without shedding blood, we would probably find at least a few dentists who would claim the right to remove these members. But, sad to say, blood stops the hand of thousands of dentists, whose diplomas, signs and business cards announce that they are surgeons. A few bloody operations do not appall these gentlemen, who are ready to extract teeth, cut into pulps, or even to lance abscesses; but even such a minor operation (minor from the view point of the general surgeon) as the amputation of the end of a root has been performed perhaps by less than a thousand dentists in this country, and of this number it is very probable that a great many have also the degree M.D., the knowledge which this would indicate, evidently rendering them less timorous. How many dental surgeons would undertake to remove an impacted tooth, no part of which appeared above the gum? Of those who would attempt such an operation in the upper jaw, how many would hesitate in the lower jaw, fearing to rupture the vessels in the inferior dental canal? How many are prepared to clean out an antrum? How many treat necrosis by purely surgical procedure?

Lessons from Experience.

The general subject was discussed recently around a small table, the half dozen diners being dentists. As illustrations of various points made, different men related cases which had either occurred in practice, or which had been brought to their attention. One involved the lines quoted at the head of this editorial. The patient, a man of thirty-five, suffered from an abscessed lower third molar, which a bungling dentist attempted to remove. The crown was broken off and the roots allowed to remain, the patient being in-

formed that they "would come out of themselves." With this assurance he returned to his home in a suburb of the metropolis, the extraction (sic!) having occurred in a distant city. A week later his jaws were immovably fixed and he was obliged to resort to liquid food. Four different physicians in his neighborhood informed him that the tooth should be removed before relief could be had, while five dentists claimed that the tooth could not be extracted until the jaws relaxed. In these circumstances the patient afterwards related that he was tempted to apply to a doctor of divinity and beseech him to try the efficacy of prayer. However, he fell into the hands of a dentist who was not afraid of blood, and the tooth was removed. A week later the same dentist entered the site of the socket with a bone bur, and drilled a hole straight through towards the large fistulous opening at the angle of the jaw, outside, and thoroughly cleansed the parts of all necrotic tissues, soft as well as bony. It seems rational to claim that this legitimately was dental surgery. In order to point the moral of this argument it becomes needful to state that the dentist's fee (a perfect success was attained), was fifty dollars.

In another instance related, an abscess of a wisdom tooth in the same locality, seemed too much for a suburban dentist, and he advised the patient to visit an oral surgeon. The oral surgeon found that "a serious operation" was needful, and advised full anæsthesia. The patient was alarmed, but acquiesced. Ether was administered and—the abscess was lanced. The patient being unconscious, the abscess cavity was thoroughly curetted and packed with antiseptic gauze in the most approved fashion of modern surgery. In time the wound closed and the operator collected a fee of one hundred dollars. This was oral surgery.

The sequel was most significant. The abscess some months later threatened to return, and the patient visited a dentist. This man was not afraid of an abscess, but he did not find it needful to etherize his patient. He first took out the remains of a phosphate filling and then he removed a putrescent pulp. The tooth became comfortable, and was filled with gold. This perhaps was not surgery, but it was good sound dentistry, and it effectually cured. Who will deny that the dentist earned his fee—twenty-five dollars?

In a third case we have the "dentist-afraid-of-blood" again. To relate the series of facts as they occurred, rather than as they were dis-

covered by the narrator, would perhaps be briefer. The above-described dentist claimed to be able to crown a first molar which was split in two seemingly equal parts. He did so, and his result was mechanical perfection. Unfortunately the patient returned reporting pain, to relieve which the second molar was extracted. The pain continuing, anti-neuralgic treatment was advised for a time without avail. A fistula appearing in the site of the extracted tooth, a diagnosis of necrosis was adopted, and tampons of cotton saturated with various drugs were applied, more or less for two years, when, during an enforced arrest of treatment by absence of the patient from the city, the symptoms abated. This is dentistry (not surgery) and the dentist's fees for treatment were five dollars per visit.

A year later, the discharges recurring, this patient sought the advice of a different dentist, one fortunately who has little fear of spilling blood. No mention was made of the split root, and the tooth with its handsome gold covering seemed innocent.

The dental surgeon did not hesitate to make an incision the full length of the space between the remaining molars, and down to the bone. Diagnosis was by exclusion. No antral opening; no remains of root; no impacted tooth; no foreign body, etc. The third molar being alive and healthy, it followed that the fault lay in the first molar. The handsome crown was removed and the tooth disclosed. The split root was extracted and was found to be necrotic, the root canals having been filled only to a slight depth. At a subsequent sitting the necrotic tissues were removed with a curette, and the issue left to Nature, who proved competent. This was dental surgery, and the fee was fifteen dollars.

The Present Status and the Moral.

Other cases were related, of equal interest, but these will suffice. The present status seems to be that the majority, the great majority, of dentists, despite their titles, are not practicing surgery, where any great risk of bleeding exists, except in the extracting of teeth and the lancing of abscesses. In the presence of necrosis, dental teaching has been at fault for years, many preceptors and even professors advising students to await sequestration, using sulphuric acid to hasten the process. In other regions of the body, in the presence of the death of a part, the surgeon promptly wields the scalpel and

detaches the dead from the living, having faith in his ability to care for the living after his operation. The average dental surgeon waits to see the living care for itself by throwing off the dead. By this means, be it noted, there is no bleeding.

The moral to be drawn is that, so long as there is a field which the general practitioner and the general surgeon believes should be occupied by the dental surgeon, and so long as the dental surgeon does not occupy this field, just so long will we have the gentlemen who prefer to be known as oral surgeons, inviting dentists to recommend their surgical cases to them; and be it noted that these oral surgeons operate on all patients that reach them recommended by the timid dentists.

Whilst, of course, the dentist is not a business man, still the financial aspect of all this is not uninteresting. We find that the dentist-afraid-of-blood, who treats with drugs what he ought to cure with the knife, is well paid, because the treatment is so prolonged. We note that the oral surgeon receives a handsome honorarium because he performs a surgical operation, and, as with other medical men, the adverse result does not militate against the sum of his fees. Lastly, we observe that the dental surgeon, skilled in diagnostic appearances of the oral tissues, especially as related to the dental organs, and not afraid to operate surgically where surgery is indicated, is likely to effect a speedy cure, though receiving a more modest pecuniary recompense.

Cogitating over this, one is led to ask, if the dental surgeon obtains the best result, with the least loss of time to his patient, why should he ask less for his services than is demanded by those who accomplish no more, if as much? Why, indeed!

Dr. Southwick Dead.

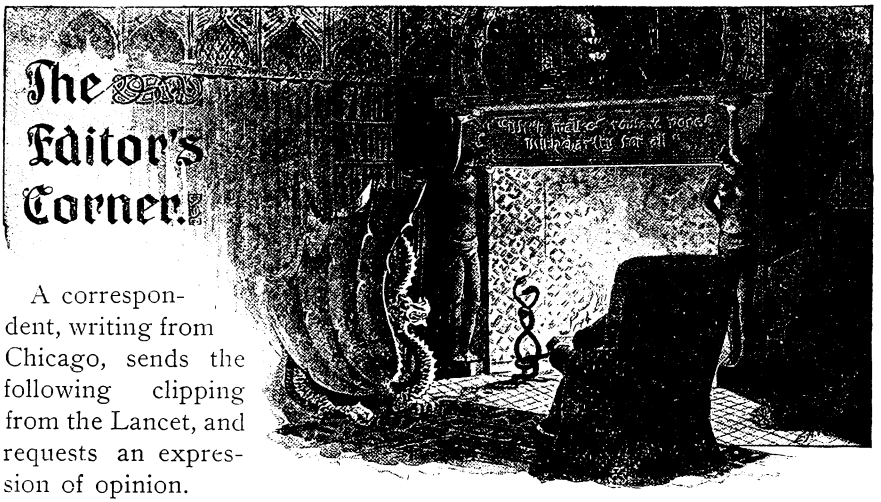
As we go to press, we learn with sincere regret of the death of Dr. A. P. Southwick, of Buffalo. In our next issue we will publish a suitable obituary. This is merely intended to convey the sad news to the dentists of the New York State Society, and of the country at large, all of whom will undoubtedly keenly feel his loss.

Dr. Southwick has been for years prominently connected with the

New York State Society, and especially with the educational features of the laws enacted in this State. In 1877 he was made a member of the Board of Censors, and subsequently became its president, which position he retained until 1895, when the Board was abolished by law and a new Board of State Examiners formed. Of the new Board he was a member and president. He helped to organize the dental department of the University of Buffalo, and was made its secretary and treasurer, and held the chair of Clinical Professor of Operative Technics.

It may not be generally known that Dr. Southwick originated the idea of electrical executions. In 1881 he conceived the idea by reading that a man was instantly killed by coming into contact with a live wire. He experimented upon lower animals, and reported his results to the scientific and daily press. As a result of his personal efforts, a State Commission was appointed by the Governor. This Commission consisted of Dr. Southwick, Commodore Eldridge T. Gerry and Matthew Hale. The Commission reported in favor of the scheme, and in spite of the greatest opposition, the law was passed. It has not required many years to prove the wisdom of this method of punishment, and Dr. Southwick lived to see scientists and humanitarians acknowledge that he had been in the right. The conception of this idea of painless death for criminals places Dr. Southwick's name rightfully next to that of William G. Morton, the dentist who rendered surgical operations painless by means of ether.

Dr. Southwick had suffered for several years from an incurable disease, and yet, at the May meeting of the New York State Society, he appeared to be in good health and spoke of living for years to come. He died at his home in Buffalo, June 11, 1898.



The Editor's Corner.

A correspondent, writing from Chicago, sends the following clipping from the Lancet, and requests an expression of opinion.

"Dr. Zamesky has invented a new kind of false teeth. It is made of gutta percha, porcelain, or metal, as the case may be. At the root of the false tooth holes are made. Holes are also made upward into the jaw. The tooth is then placed in the cavity. In a short time a soft granulated growth finds its way from the patient's jaw into the holes in the tooth. This growth gradually hardens and holds the tooth in position. Dr. Zamesky has tried this on dogs and men with success."

Ever since it was discovered that implanted teeth are lost by the subsequent absorption of their roots, many men of ingenuity, but lacking scientific knowledge, have attempted to invent a tooth, the roots of which would not be absorbed. A few of the experiments may be enumerated. One pseudo-scientist implanted all-porcelain teeth, the roots fashioned in the form of a screw; another used a similar tooth having bay-like excavations for the entrance of granulations; another pinned his faith to the same class of tooth having holes passing completely through; another tried aluminum in various forms; a more thoughtful experimenter wooed success with lead roots to which he attached porcelain crowns; he had heard of bullets remaining in the flesh; another having noted the tolerance for gutta percha which is often exhibited by the alveolar tissues, used a tooth coated with gutta percha. A radical departure was made by the genius who made a trephine of aluminum, having holes along its sides. To this was fitted a porcelain tooth crown. The aluminum trephine was slowly turned into the jaw and the crown placed in position. These and other equally ridiculous experiments have been tried, and all have failed.

Retention of Implanted Teeth Explained.

These experimenters have all been mere mechanics. Observing that implanted natural teeth have been finally lost because of the destruction of the roots, they have had the marvelous inspiration that if the root could not be so destroyed the implantation would be permanently successful. All of which overlooks the somewhat obvious fact that unless this imperishable root can be retained in the jaw, the characteristic of indestructibility is of little advantage. The gentleman who gravely implanted the lead root at a public clinic was wise indeed. He reminded those present that lead bullets are encysted, and defied adverse criticism. His operation was accomplished with neatness and dispatch, and the artificial crown looked quite well in place. The previously made splint fitted to perfection and the operation should have been successful—only it was not. The splint was removed several weeks later, and the socket had healed nicely around the lead root, which, however, fell out.

There is no analogy between the retention of an implanted tooth and the retention of a lead bullet. The latter is forced deeply into the tissues, and, the mouth of the wound closing and healing, nature deals with the foreign body in one of two ways. Either a destruction of the surrounding tissues is accomplished by a suppurative process and the final expulsion of the mass through the pus track, or else the bullet is retained within the body, but separated from the adjacent normal tissues by the formation of an enveloping tissue, the bullet being encysted. No bullet or other foreign body can be encysted when half of it protrudes from the body, as in the case of an implanted tooth, the crown of which does not enter the bone.

The theory advanced years ago by Dr. Younger that the pericementum is revivified and that the union is a living one, has never been proven, and is inconsequential because teeth from which the membrane had been removed have been implanted with as good results as where the membrane had been retained. How, then, is the implanted tooth fixed in the jaw? The following is probably as near the correct explanation as can be given with our present knowledge.

In performing the operation known as implantation, the first step is to drill a hole in the bony process. Supposing that nothing more were done, what would result? From the irritation set up osteoblastic (bone building) cells would accumulate and the process of repair would rapidly ensue, provided no infection entered the wound. The insertion of a tooth root into this wound does not change the result, though it does modify it. That is to say, the osteoblasts still appear, and the process of repair is inaugurated. But a foreign mass is to be overcome. Giant

cells, osteoclasts, crowd forward. These bone destroyers attack the root. Just at this point we may revert to the various experiments with imperishable roots. These the osteoclasts could not destroy; consequently they would either disappear or else seek to rout the intruder by attacking the bone of the jaw itself. Thus the very imperishable nature of the root defeats the aim of the operator. How is it with the natural root? Exactly the reverse. It is the perishable nature of the root which leads to success. The osteoclasts attack the cementum and bay-like excavations are made into it, and perhaps through it into the dentine. Meanwhile the osteoblasts are also at work building up as fast as the osteoclasts are breaking down. If the osteoblast overtakes the osteoclast, that is to say, if new bone is built into the eroded portions of the natural root, the implantation is said to be a success. The splint is removed after two months or more and the implanted tooth is firmer than its neighbors.

The Loss of Implanted Teeth Explained.

But this very firmness of implanted teeth is the weakness of the method, when viewed in the light of a permanent success. Normally the teeth are not firmly united to the bone, but rather are articulated in sockets and separated from the bone of the jaw by a membrane which supplies a cushion to protect the tooth from undue strains of occlusion and mastication. Had it been better to have the teeth firmly fixed in the jaws it is certain that they would have been so attached by nature. The implanted tooth is firmly fixed for months, possibly for years; but one day, perhaps unobserved by the patient, the tooth receives undue strain, which instantly separates it from its attachments. Henceforth it is held merely as a nail driven into a board. The living having lost its attachment, is no longer ready to tolerate this foreign body. The irritation of the wrench has been sufficient to invite the arrival of the osteoclast, and he is promptly at hand. His rival, the osteoblast, however, is not present to overcome the work of destruction, consequently erosion of the root proceeds and the tooth is shed.

Method of Quickly Filling Large Cavities.

The following method is suggested by Dr. Cochrane, Canal Winchester, Ohio: "Place in the cavity a piece of gold foil, No. 6 or 10, large enough to overlap the cavity edges when forced against the bottom of the cavity. Place within this a piece of lead large enough to fill the cavity two-thirds full. With a plugger condense the lead, spreading it against the walls of the cavity, causing the gold to conform perfectly. Next turn in the over-lapping gold, thus covering the lead and presenting a gold surface. Complete the filling as though gold had been used throughout."

Cleansing Instruments of Cement.

Dr. William B. Mean, of Providence, R. I., writes as follows: "In an article recently published I suggested a method of detaching a pin cemented to a root or to a pivot crown, by the use of a strong alkali—aqua ammonia—to produce disintegration of the oxy-phosphate of zinc. I use the same alkali to clean my spatulas and pluggers after filling with this cement.

Remove what you can otherwise, and then dip the instrument into the aqua ammonia, and afterwards rinse the wipe dry.

I find this method unknown to many of my professional friends. It may help others."

Dentists in the Army.

Mr. Otey, of Virginia, has introduced a bill (No. 10508) in the House providing that there shall be an increase in the medical corps of the United States Army of a dental corps, to be composed of one surgeon dentist to each brigade, with the rank of Major, and one surgeon dentist to each regiment, with the rank of Captain; that each one of the dentists shall be graduates of reputable dental colleges and shall have been in full practice of dentistry continuously for the past five years. The time of service, promotions, pay, allowances, retirements and so forth shall be governed by the rules now in force in the medical corps. All supplies shall be furnished the dentists by the same Board and in the same manner that supplies are furnished to the medical corps.

Dr. Redmond W. Payne Married.

Miss Grace Adeline Sabin and Dr. Redmond Wellington Payne plighted their troth for life before the altar of St. Paul's Episcopal Church, San Francisco, Cal., on the evening of June 1, 1898. The chancel of the church was made beautiful with flowers and palms. White sweet peas were used in profusion and from every niche and corner nodded the waxen blossoms of the Bermuda lily.

There were a thousand invitations out for the wedding, and long before the time appointed for the appearance of the bridal party the church was crowded to the doors. At 8:30 o'clock the organ sounded the familiar notes of the Lohengrin chorus and the first measures were scarcely concluded before the six bridesmaids entered the chancel and filed down the center aisle to the door. Miss Alice Cowne and Miss Fay Rambo led; then came Miss May Crowell and Miss Virginia Belknap, Miss Alice Sprague and Miss Jessie Hooper. At the door they were met by the ushers, who headed the bridal procession to the altar. Dr. Louis C. Deane and Dr. Walter H. Wallace went first, then followed Dr. Albert H. Taylor and Dr. William Boyes, Dr. Philip King Brown

and J. Malcolm Gleaves. The bridesmaids then took their places in line. The maid of honor, Miss Ladd Sabin, preceded the bride, who was attended by her father, John I. Sabin. The bride was met at the altar by the groom, who was attended by his brother, Dr. Eugene Payne, the best man. The ceremony was that of the Episcopal ritual. Rector William Reilly officiated. The bride was given away by her father.

Dr. Stockton Meets With a Loss by Fire.

Our good friend, Dr. Stockton, is not only a good dentist, but is one of the largest manufacturers of bicycle parts in the country. We are sorry to learn that his factory was burned June 11, and that he sustained a loss of about $20,000, which is covered by insurance. The loss from stoppage of business for at least a month will be considerable. We extend our sympathy.

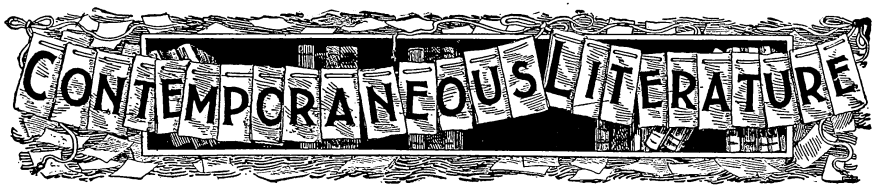
The Cause of his Death.

In 1827 Mr. Zea, Colombian Minister in England, died suddenly. He was insured in various offices, and rumor said he had shot himself. A meeting of one of the insurance boards was held, and the directors were talking the matter over, when Dr. M—— appeared, who was the company's medical conferee, as well as Mr. Zea's own physician.

"Ah, now you can tell us the true cause of Zea's death."

"Certainly I can," said the doctor, solemnly, "because I attended him."

Here he paused, and was surprised to find that his merely preliminary remark was hilariously received as a solution of the whole question.—Household Words.



Sulphuric Acid for Opening Root Canals.*

By J. R. CALLAHAN, D.D.S., Cincinnati, O.

The opening of "Root Canals" has been the subject of much discussion and many wild assertions. We have often heard of dentists who claimed to be able to open to the apex, the root canal or canals in any tooth.

I wish to say that no such claim will be made for the method that I desire to bring before you today. For the opening or enlarging of all straight and unobstructed canals, I prefer and use the "Gates-Glidden" drill after the manner described by Dr. George Evans, in his work on "Artificial Crown and Bridge Work," third edition, page 21; but, valuable as this instrument may be, we see almost every day in practice, canals that cannot be opened properly by this or any other drill.

It is seldom that we see canals in buccal roots of superior molars, or in roots of lower molars, in which a drill can be used; many times in bicuspids and inferior incisors, the roots are so flat and thin that drilling is dangerous, yet all these canals may be in such condition that we are compelled to open them for treatment and filling. There are canals that are constricted just at the chamber, sometimes so much so that they can scarcely be found, yet the canal in the root is large and should be opened. There are canals in curved roots and canals obstructed by osseous growths, that if not properly opened, would most likely cause trouble. It is with this difficult class of root canals that I wish to deal at this time.

Method of Using Sulphuric Acid in Canals.

It has been about four years since I began to open this difficult class of canals by using a 20 to 50 per cent. aqueous solution of sulphuric acid and the Donaldson Root Canal Cleanser. To illustrate the method, let us suppose we have a superior molar tooth, from which the pulp tissue has been removed, the palatine root being large, can be prepared by any method you may choose; but let

* This article appeared in the *Ohio Dental Journal*, January, 1894, and is reprinted for the information of many subscribers who have asked for directions for using Dr. Callahan's method.—EDITOR.

us say, the canals in the buccal roots cannot be found; we would then place a pledget of cotton saturated with the acid solution in that portion of the cavity near the buccal roots and seal it in the tooth for 24 or 48 hours; then upon the removal of the stopping, wash out the cavity with a dash of water from the syringe; upon drying the cavity you will find it white and clean with two dark spots in the vicinity of the buccal roots, showing where the canals can be found. Now we try to enter the canal with the nerve bristle; we find no opening. To make sure we are not being deceived by a constriction we take a bud drill and follow these stains a short distance; if we find no opening, or a very minute opening too small for the bristle, we will feel justified in saying they need no further treatment. But, if with our exploring instrument we find a canal, we will carry the acid to the canal by dipping the instrument in the solution, or by means of the pliers, or better still, the latest pattern of the *Dunn syringe, place a drop of the agent in the chamber, and with a No. 5 Donaldson canal cleanser pump the acid into the canal; the acid will soften the walls of the canal sufficient to allow the broach to cut its way into the root; the acid will also thoroughly sterilize the canal and everything in it. No germ or spore can live in the presence of (H_2SO_4) in the strength mentioned. The broach may scarcely enter the canal at first, but if you are persistent it will be but a few minutes till the instrument will go quite a distance into the canal until you reach the end of the root, where a much stronger resistance will be met with.

The thickened cementum at this point seeming to offer a greater resistance to the agents used, the canal can then be enlarged by using larger broaches, or if the root is straight the "Gates Glidden" drill will follow the canal just made; it is more than likely that the apical foramen has not yet been opened; this can be accomplished, if desired, by drilling or by placing a small thread of cotton saturated with the acid solution in the end of the root and leaving it there over night, and then using the broach and acid at the next sitting; after one or two trials you can readily see how crooked or obstructed canals may be opened in a few minutes, and the canal will be in condition for immediate root filling. It must be borne in mind that the rubber dam should always be in place before the operation is begun; the adjoining teeth may be protected by placing the dam on none but the tooth being operated on.

I confess that at first sight the application of so strong a solution as 50 per cent. looks to be rather heroic; but four years' constant use has proven to me that there is little or no danger of injuring the tooth or the surrounding tissue, if the operation be controlled by any sort of common

* The Dunn syringe referred to is made of glass and rubber with platinum or gold point.

sense. We do not hesitate to use arsenic or nux vomica, aconite, argenti nitras, cocaine and scores of other poisonous drugs. We can have the action of the acid under perfect control. I always keep a saturated solution of bicarbonate soda on the case so that I may stop the action of the acid at any moment. In but few cases is it probable that the acid will go through the apical foramen in quantities or strength sufficient to have any corrosive effect, for the reason that neutralizing agents in the dentine will have materially weakened the acid before it can pass through the extremely small opening at the apex of the root. If there be an abscess present the foramen is likely to be larger and the condition of the tissues about the apex of the root will be materially benefited by the presence of the acid even if in the full strength of the solution. In my mind there could be no better agent for the breaking down of the diseased tissues and the positive destruction of all germ life. A case in practice will probably illustrate the point I wish to develop.

A Case from Practice.

A lady about 25 or 30 years of age had been under surgical treatment for a large fistula at the symphysis of the chin, came to me at the request of the surgeon for examination and treatment, if I thought the case demanded it. By the aid of the electric light I was enabled to locate the trouble in the two inferior central incisors; the pulp chambers in both teeth were opened; the canal in each tooth was so small that it was practically closed; a drop of the acid solution was placed in the pulp chambers and with a No. 5 Donaldson root canal cleanser, was pumped into the canals; in a few minutes the instrument found its way through the root; the canals were then enlarged by using larger broaches, thereby establishing direct communication from the pulp chamber through the seat of the abscess and through the whole length of the fistula; several drops of the solution were then pumped through the roots into the fistula and made its escape through the opening at the symphysis. On the second day the case was given the usual antiseptic dressing; on the fourth day the roots and fistula were thoroughly filled with chloropercha, the case was kept under observation for a few days, no signs of inflammation appearing, the case was dismissed as cured. This is one of a number of cases successfully treated in this manner; in this case I do not believe the roots could have been opened in a reasonable time by any other method, and I believe that the acid solution was the best remedial agent that could have been applied at that stage of the treatment.

The acid at first attacks the tooth substance vigorously, breaking up the lime salts and corroding or changing the form of the organic substance and forming a new compound, thereby establishing a barrier to the

farther progress of the acid. Prof. J. S. Cassidy in his valuable text book, "Dental Chemistry and Materia Medica," page 77, says: "The acid attacks the earthy portion, forming insoluble calcium sulphate ($CaSO_4$) and at the same time dehydrating the animal or gelatinous portion, which is mainly made up of carbon, hydrogen and oxygen; these two latter elements are withdrawn as already alluded to, leaving the indestructible carbon as a residue, to be incorporated with the insoluble sulphate, producing thus, a protecting covering to the unaffected parts beneath against further inroads both of the causing agent and other solvents.

Experiments Out of the Mouth.

I have here several specimens which I hope you will examine carefully; as you see, large cavities were cut in sound teeth. The cavity in No. 1 was kept full of a 50 per cent. (by volume) solution of sulphuric acid for ten minutes. The cavity in No. 2 was kept full of same solution for two hours. The cavity in No. 3 was kept full of same solution for twenty-four hours. The cavity in No. 4 was subjected to no other treatment than to be washed with alcohol. The cavity in No. 5 was filled with same solution on December 1st, at 1 P. M., and kept full till the morning of December 5th, when I placed a pledget of cotton saturated with the solution in the cavity and sealed it in the tooth with wax; this was done that I might bring the tooth to you that you may open and examine for yourselves. In No. 5 the root canals were opened as described by the use of the acid and broaches, and the ends of the roots were then ground off to show the action of the acid on the walls of the root canal near the apex. No. 6 received no treatment further than to have the ends of roots ground off the same as No. 5 in order to show the normal appearance of root canal near apex. I think you will be unable to discover any material difference in the appearance of the dentine in Nos. 1, 2 and 3, which I think is proof that the action of sulphuric acid on tooth substance is self-limited; for we find in this experiment that the acid penetrated the tooth substance practically, no farther in twenty-four hours than it did in ten minutes. If, with an excavator, the almost invisible layer of dissolved dentine be removed, a perfectly hard, smooth surface will be found. About the root canals specimen (No. 5) you will see what appears to be a small zone of decalcified dentine. A glance at specimen No. 6 will show the same appearance. As to the action of the acid solution on the bone tissue surrounding the roots of the teeth, I quote Mr. George Pollock, F.R.C.S., Surgeon to St. George's Hospital, who says: "Dilute sulphuric acid does not affect the living, acting chemically on diseased bone alone," and gives the following experiments: Portions of dead, diseased and healthy bone were selected and subjected to the action of "sulphuric acid," viz:

No. 1.	Dead bone	10 grains.
No. 2.	Diseased bone	10 grains.
No. 3.	Healthy bone (middle age).....	10 grains.
No. 4.	Healthy bone (old age).....	10 grains.

Exposed to the action of a mixture of sulphuric acid and water, one part in four for three days, at a temperature of 100°, the following were the results:

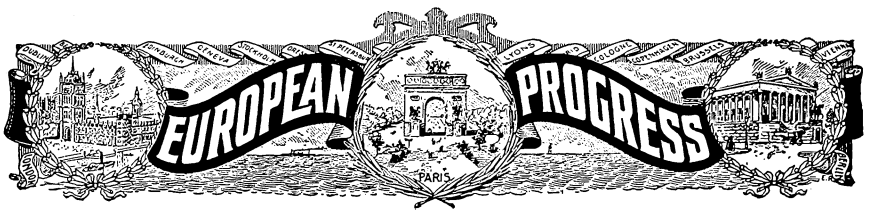
No. 1. Dead bone; phosphate of lime, 2 grs.; carbonate of lime, 3.3 grs. dissolved in the mixture.

No. 2. Diseased bone; phosphate of lime, 2 grs.; carbonate of lime, 1.3 grs. dissolved in the mixture.

Nos. 3 and 4. In both specimens of healthy bone, *no action took place.*

Prof. Garretson says, in his treatment of "Caries of the Maxilla," he used the official ordinary "sulphuric acid." (Garretson's Oral Surgery, third edition, page 705 and 706.)

On the soft tissues the solution will have a corrosive and astringent effect; or, in other words, will break down or destroy the diseased tissue, leaving a fresh, clear field for nature to take care of herself with the assistance of milder antiseptic treatment.



A New Filling Material.

By Dr. Carl Jung, Director of the Dental Institute, University of Heidelberg.

From *Odontologische Blätter*, Berlin, Germany.

Translated by Geo. Randorf, Berlin, Germany.

If from the large group of variously diseased teeth we take those, the crowns of which have to a great extent been destroyed, but the pulps of which are still intact, we have before us those pain-givers that generally cause great trouble to even the most skilled operator.

True, it is relatively easy to grind such teeth cylindrically and crown them. But this does not always suit the patient's taste, nor is it, still more frequently, compatible with his pocketbook. Preservation by filling them has in most cases been very difficult.

Excepting gold (and perhaps porcelain) none of the filling materials now in use are entirely suitable. Amalgam which might be suggested in first place, will, no matter how carefully employed, always contract somewhat when used in such large masses, except, perhaps, copper amalgam, which is to be rejected on account of its bad color, easily noticed in such cavities. Cement will soon disintegrate, as will gutta percha, which latter, even in its toughest preparations, cannot very long resist the pressure of occlusion.

Phosphate cement would be the ideal filling material for such cavities (as for all others), if it were durable. Even thin walls permit its introduction and are even strengthened eventually by the intimate conjunction of cement and dentine. If, therefore, it would be possible to cover the cement filling from the outside in such a manner that no particle of it would be directly exposed to the fluids of the mouth or to pressure, it would come very near the ideal filling material, not considering the color.

I am well aware of the fact that it has been suggested to stamp little gold plates which by some device could be pressed upon the cement and

fixed there. I have myself employed this method for years; it gives good results, but is not easily executed, which might also be said of porcelain.

Tin Fillings Made out of the Mouth.

But in tin, I believe, we have a material suitable in every respect. After the cavity has been prepared in the usual manner, and the edges thoroughly finished, the overlapping parts are filled with a little cement or plaster, after which an impression is taken with a little piece of modeling composition, and a plaster model is cast, which is thoroughly dried. A little tin is now introduced into the cavity reproduced in the plaster; flow it (use no soldering solution) with the hot soldering iron and press with a piece of leather or linen, as in preparing a flat tooth with tin back. Filed and finished, the tin filling itself is now complete.

With some practice it is easy to fill even complicated cavities with the soldering iron, without the tin overflowing the sides. If the soldering iron is not too hot, it is possible to bring the tin into a state in which it does not flow directly but can be worked with the spatula like wax. A matrix of moldine or the like could be built around it.

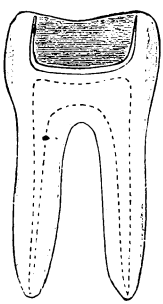


FIG. 1.

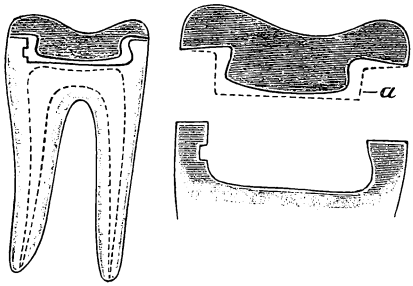


FIG. 2.

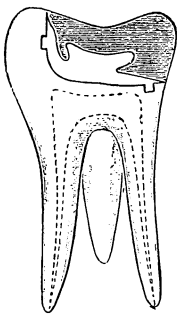


FIG. 3.

The method is simple in cavities as shown in Fig. 1, that is, with box-like cavities having high sides. In this case it is only necessary to remove the cement previously introduced, smear the cavity with thinly mixed phosphate cement and impress the tin block.

Cavities of the form and dimension as illustrated in Fig. 2, require a preparation of the tin filling similar to a porcelain filling, viz., the cutting of a groove into which the cement can fasten itself, and an undercutting of the cavity for the same purpose.

The same may be said of larger cavities (Fig 3). Here also we have a groove, getting the support for the cement in the walls of the cavity.

In fillings as shown in Fig. 4, I shape the groove a little differently. In this case I bevel the plug from the sides towards the middle, and

hollow it out to get room for a layer of cement as shown in the sketch. The beveling is necessary to give the latter the required thickness to resist the bite. The beveling and drilling of the tin plug are easily accomplished with the engine and the ordinary drills, if the precaution be taken to keep the latter wet, as otherwise the tin quickly chokes up the drills.

Similarly with large cavities, as in Fig. 5, where the principal fastening for a filling is sought by cutting out of the grinding surface. Here the cement layer, if it can get a good hold of the cervical side, affords an excellent support for the anchoring.

Occasionally it seems difficult to get an impression of the latter kind, but it will always be successful if one thoroughly removes the side walls of the cavity and opens the grinding surface broadly.

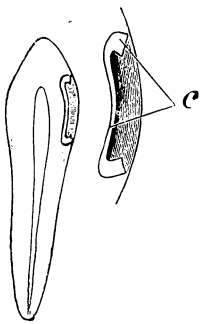


FIG. 4.

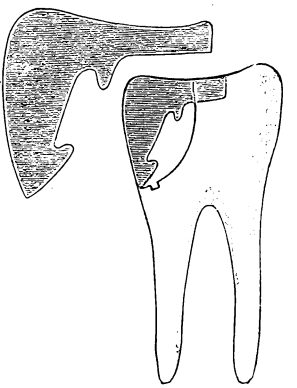


FIG. 5.

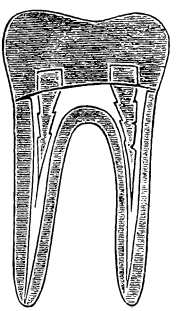


FIG. 6.

If it appears desirable, special undercuts can be made in all cavities, but this is usually superfluous, as with the use of good cement, the adhesion of the cement affords an excellent support on even flat grinding surfaces.

Tin fillings are finished like any other, but not before the cement has become thoroughly hard, preferably the next day. How well tin can be finished is well known. It will adhere closely to the sides of the cavities, especially when dressed with paper disks, and forms a truly ideal plug that does not change by contraction like amalgam. The tin at polishing, laps over the thin cement border, so that if the whole be properly filled, not a particle will remain visible or exposed to the fluids of the mouth.

The disadvantage of too great softness, observed in tin fillings, often made of tin foil, these massive fillings do not have; they are perfectly hard enough to permanently withstand pressure of occlusion, as well as the

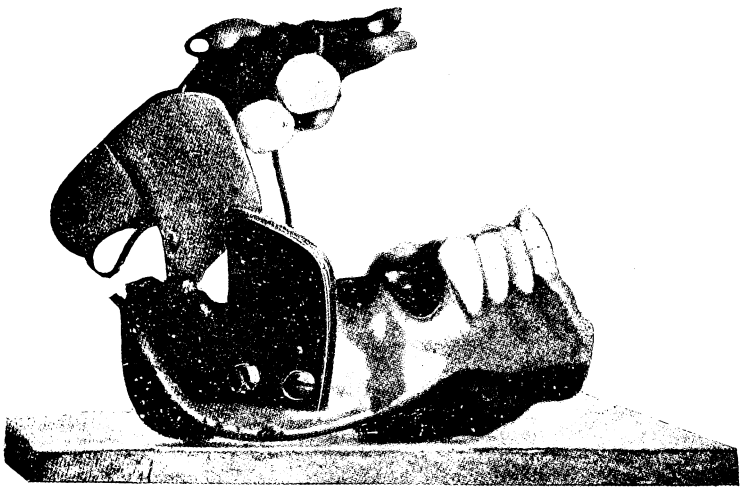
energetic application of the brush. On the other hand, such a filling is easily drilled out again, if it should become necessary—an advantage not to be underestimated.

I have made whole crowns of tin in several cases (Fig. 6), also melted in pins which were then cemented into the root canal. They have proved very satisfactory.

A Case of Prosthesis of the Lower Jaw.

By P. MARTINIER, Professor at the Paris Dental School.
From *L'Odontologie.*
Translated by Geo. Randorf, Berlin, Germany.

The models which I present are from a farmer, twenty-four years old, who, on November 17th last, was operated upon for a bony growth



on the lower jaw. Two months later he came to the clinic of the school to have a prosthetic apparatus made which should replace the resected portions.

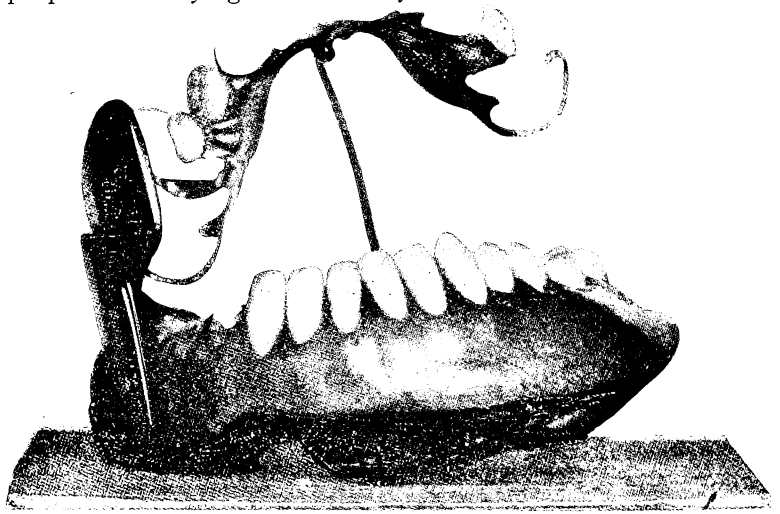
The examination revealed the following conditions:

The face is deformed by the cutting away of two-thirds of the lower jaw, that is to say, the whole left side from the condyle to the right canine inclusive. A long scar begins at the region of the parotid below the lobe of the ear and reaches down in front to about the bony formation of the chin. The scar is thick and stretched and contracts the

remaining portion of the lower jaw, with the result that the articulation of the remaining fragment is faulty. The patient can no longer masticate, and is obliged to take only liquid nourishment. He loses saliva in abundance, and speaks with some difficulty and considerably altered pronunciation.

I intrusted a third year student (Mr. Lemaire) with the construction of the apparatus, which resulted in the appliance described below.

1st. A network of platinum nearly encasing the fragment of the lower jaw from all sides. This cage reaches down very far, thus getting a firm support on the jaw, and not the teeth, so as not to strain them too much. Two strong pins of German silver are soldered to the cage for the purpose of carrying an artificial jaw.



2d. A platinum piece for the palate, to which is soldered vertically on the right side a little plate, likewise of platinum, of nearly rectangular form. This little plate slides on the inside of and against another plate of rubber fastened in turn to the network of platinum by means of a screw. These two little plates by sliding against each other are to prevent lateral motion and to constantly maintain in its normal position the fragment of the lower maxilla.

On the left side, a strong spring kept in place by a holder was attached to stretch the scar tissue as much as possible, which result was obtained with comparative facility. Later on, in accordance with the relaxing of the scar tissue, a layer of gutta percha was added to the exterior side of the inferior apparatus, which was to be replaced by black rubber as soon as the face was sufficiently restored and the patient had become accustomed to the apparatus.

The patient has worn this apparatus since May 30th last, and has from the first worn it well. The only thing we noticed was a slight ulceration back of the right lower bicuspid, which disappeared in a short time.

April 14th, two weeks after the placing of the apparatus, the spring was removed without any inconvenience. The apparatus is well in place and firmly fixed. The patient, in his own way, eats meat, and affirms that he expects soon to be able to eat on the left side where the apparatus rests on the soft parts. He loses no more saliva and speaks pretty distinctly.

The principal difficulty consisted in stretching the scar tissue which had to support the apparatus, without causing ulcerations serious enough for complications. This result was obtained, for as we said above, we encountered only a slight buccal ulceration which disappeared rapidly.

We conclude therefore by saying that with such an apparatus one must proceed slowly and not hope for immediate success. The impression of the soft parts is of no importance for they cannot furnish exact indications. One must proceed prudently and slowly, keeping pace with the result obtained, and modify the apparatus until a final, accurate one has been constructed. Mistakes are inevitable, and one must guard against a tearing of the tissues of the scar, and the complications which may result therefrom.

A Movable Clamp Mirror.

By Dr. G. von Wunschheim.

From *Oesterreichisch-Ungarische Vierteljahreschrift für Zahnheilkunde.*
Translated by Geo. Kandorf, Berlin, Germany.

Every one who has inserted difficult gold fillings in the approximal surfaces of anterior teeth, from the inner or palatal aspect, will admit that the dentist, especially in filling distal and palatal cavities, is very often obliged to perform with one hand that for which two hands would be none too many. Especially when starting such fillings, much patience and skill is required to make the first portions of the gold adhere, as the left hand being busy with manipulating the mirror, can give little or no aid to the right hand in introducing the gold.

These difficulties induced me to devise a mirror that could be fastened in the mouth, and thus permit of the use of both the operator's hands. Such a mirror, to fully serve its purpose, must meet certain requirements, which I briefly state thus: Simplicity of construction; adaptability of

being easily fastened anywhere in the mouth, and brought into any desired position; it must not narrow the field of operation; and, finally, must not cause unnecessary annoyance to the patient.

The first condition, simplicity, certainly obtains in the "clamp mirror," for it consists only of a clamp, a lead wire, and the mirror; by means of two little binding screws, these three parts are joined into a whole.

The clamp (Figure), is constructed in such a manner as to find its support on two adjacent teeth, as it can only thus be fastened sufficiently

to carry the lead wire and mirror without becoming loosened. It consists of a strip of metal bent to nearly the form of a circle, widening considerably towards the ends, and tapering finally into points which clutch within the interdental space, whereas the arms grasp around the necks of the teeth, thus affording a firm hold to the clamp. This is shaped to fit the two bicuspids, as in most cases at least one of the four pairs of bicuspids will be found preserved. But it can without difficulty be fastened to any two adjacent teeth, as two incisors, cuspid and bicuspid, or bicuspid and molar. The clamp is of the smallest possible dimensions, never exceeding fifteen mm. in any direction. To the vertex of the clamp

is riveted a small rounded metal block carrying a hole laterally three mm. wide, for the lead wire—the connecting link between clamp and mirror—to be fastened with a binding screw.

The lead wire (Figure), which is about three mm. thick and twelve cm. long, is rounded at the ends. Its mission is to make the mirror independent of the point of fastening, and allow of any and every change of position, at any moment. As only lead permanently possesses the necessary softness and flexibility, nothing was left but to fall back on lead, after many experiments to find another lighter material. Two extra wires are furnished with every clamp mirror, as one might become unserviceable after much bending.

The mirror (Figure), is an ordinary plane or concave mirror, twenty-five mm. diameter, carrying at the back like the clamp a small perforated metal block and binding screw by means of which it is fastened to the lead wire.

Application: Take for instance an approximal cavity in the right upper central incisor, to be filled from the palatal aspect. Adjust the rubber dam including also the two right upper bicuspids to which fasten it with the above described clamp, which can be done with an ordinary clamp forceps. After the dam has been fastened to the other teeth, screw the lead wire which carries the mirror to the clamp, so as to have it come from the right side of the mouth. The wire resting upon the chin can be turned upward and the mirror placed in the required position exactly beneath the tooth to be filled. Neither clamp, nor wire, nor mirror, are thus in the way; neither do they cause any annoyance to the patient, as both wire and mirror can at any moment be placed in some other position. The mirror presents a large field of operation, thus making a change of position only seldom necessary, and then it can easily be accomplished with two fingers.

In the same manner the clamp could be fastened to the left upper bicuspids if local conditions should make it more desirable. It can also be fastened to the lower teeth, in which case after adjusting the dam to the upper teeth, the clamp is fastened to two teeth of the lower jaw, and the wire bent so as to turn upward over the dam.

This "clamp mirror" has the advantage that, unlike other similar instruments, it can be fastened anywhere in the mouth (as far away as possible from the tooth to be filled) and placed in any position at any moment. It has been designed primarily to facilitate, in certain cases, the filling with gold of teeth from the palatal aspect, but it will, no doubt, prove a welcome aid in many other cases, as the filling of distal cavities.

Eucaine "B."

By Professor Reclus.

Report made at the Academy of Medicine, Paris, March 29, 1898. (Translated from the "Bulletin Medical," No. 26, March 30, 1898.)

At about this time last year I communicated to this body in my own name and in that of our colleague, Professor Pouchet, the results of our experiments with eucaine.

In February, 1897, Dr. Silex, of Berlin, brought forward a new substance which he designated eucaine "B," to distinguish it from the first product, which was henceforth to be known as eucaine "A." This new anæsthetic is a chlorhydrate of benzoylvinyldiacetonalkamin, and has been studied in France by Professor Schmidt, of Nancy, by Dr. Dolbeau, and by his chief, Dr. Panas. The latter will perhaps tell us concerning the value of this substance in ophthalmology. I myself have been experimenting with eucaine "B" in conjunction with my pupil, Dr. Legrand, for the last six months; and it is the result of our joint labors that I desire to briefly communicate to you today.

Eucaine "B" possesses a certain number of indubitable advantages. In the first place its solution can be boiled without undergoing decomposition, thus permitting it to be sterilized by heat. This cannot be done with cocaine; for, as is well known, at a temperature of 80° C. (176° F.) it is transformed into ecgonine, a substance devoid of all analgesic power. In the second place, solutions of eucaine "B" are stable; and this is the case to such an extent that we have been able, in conjunction with Dr. Legrand, to perform a number of long and delicate operations with solutions that were more than four months old. This is far from being possible with cocaine solutions. They change at the end of four or five days, and they can no longer be used by about the fifteenth day. Finally, and this is really the most important point, eucaine "B" is much less toxic than is cocaine. All experimenters have come to this conclusion. Like Silex and Schmidt, Legrand and Joanin have demonstrated that 8 centigrams (1 1-5 grains) of cocaine per kilogram (2 1-5 pounds) of weight will kill a guinea-pig, whilst it takes 30 centigrams (4⅝ grains) per kilogram (2 1-5 pounds) of eucaine "B" to have the same effect. The toxicity of eucaine "B" as compared with that of cocaine is therefore as 1 to 3.75.

Such an advantage is not to be overlooked, and the security which it gives us can readily be seen. Our previous experiments have demonstrated to us that it was not prudent to exceed or even attain a dose of 20 centigrams (3 grains) of a 1 per cent. solution of cocaine; larger doses being liable to cause serious accidents. Eucaine "B" can be used much more freely. The experiments made with guinea-pigs seem to show that enormous doses of 50 to 60 centigrams (7 7-10 to 9¼ grains) may be administered with impunity to the human subject. Practically we have never employed these colossal doses; nor do we know any operations within the domain of local anæsthesia in which such enormous quantities of the anæsthetic would be necessary. We have never used more than half of this quantity, 20 to 25 centigrams (3 to 3⅞ grains) in our operations for the radical cure of hydrocele, and hernia, for our artificial anus operations, our gastrostomies, our anal dilatations, our hæmorrhoid operations, and our resections of the scrotum. But, if the cases had required it, we should not have hesitated to give much larger doses.

To administer such doses of 25 and 30 centigrams (3 to 3 7-8 grains) of eucaine "B" we have changed the method which we have so long followed in the employment of cocaine. All our cocaine solutions have been of the strength of 1 per cent. But, as eucaine "B" appeared to have a little less analgesic effect than cocaine, and since its toxicity is very much less, we have found it better to employ a 2 per cent. solution. This is active enough to permit us to incise the tissues immediately after the injection of the last syringe-full of the solution. With 1 per cent. solutions we found it necessary to wait for five minutes until the analgesia was completely established. The 2 per cent. solution appeared to be quite sufficient for all purposes; and we believe it to be both useless and dangerous to employ the 5 per cent. to 10 per cent. solutions recommended by Schering and Lohmann. Though eucaine is much less toxic than cocaine, it is still poisonous; and with such exaggerated doses I fear the occurrences of such catastrophies as have unfortunately marked the advent of cocaine. Indeed, it is quite possible that the 10 per cent. solutions that are spoken of are imaginary ones; Silex, and later Legrand and Joanin have fixed the coefficient of solubility of eucaine "B" in water at 15° C. (59° F.) at 5 per cent. How then could Lohmann and Schering prepare their 10 per cent. solutions?*

As is seen, we recognize some very marked advantages in eucaine "B;" but there is one more which we have no yet mentioned. Dentists

* 10% solutions can be prepared by simply warming the water, but it should be noted that after cooling a part of the eucaine "B" will separate. These crystals can be dissolved again by warming the solution without in the slightest degree affecting the action of the solution. Such concentrated solutions remain perfectly clear quite long enough for the completion of an operation. (Note of Schering & Glatz.)

cannot put their patients to bed; they must, perforce, let them get up and go after the local anæsthesia. This practice is not free from danger after cocainization; with the assumption of the erect posture there sometimes appear vertigo, a tendency to syncope, gastric pain, and vomiting. We saw such a case only a few days ago. These accidents may be avoided by maintaining the recumbent posture for an hour or two after the operation. But this, which should never be omitted after a cocainization, is difficult for the dentists to enforce. If it is true, though we have not yet a sufficiently large number of observations to affirm it positively, that with eucaine "B," the patient can get up and walk immediately after the operation without any risk, it is evident that this fact alone should cause it to be used instead of cocaine in all dental operations.

Are we, then, now in a position to generalize and proscribe cocaine for the benefit of eucaine "B" in surgery? I cannot decide to do it, and for the following reasons: In the first place the analgesic power of cocaine is really a little greater than is that of eucaine "B." Then again, eucaine "B," like eucaine "A," is a vaso-dilator, and the hyperæmia of the tissues causes hemorrhages that obscure the field of operation. Finally, 20 to 30 minutes after the operation, there sometimes appears in the eucainized wound a very disagreeable smarting, lasting for one or two hours. A number of patients complain of this. These disadvantages, though of no great importance, as I admit, lead me to still prefer cocaine, which, with the technique that I have employed for the last ten or eleven years, has been used in more than 4,000 operations without a single serious accident. This technique, by the way, has lately obtained important adherents in the Germans, Braun and Hackenbruch, who maintain that it is the best that can be employed.

I will end and sum up this communication with the two following propositions: 1. Cocaine, well and prudently administered, seems to us to remain the best anæsthetic; 2. Eucaine "B" stands very little behind it, and is to be preferred in dentistry and in such other cases where the field of operation is extensive, and require the employment of a large quantity of the anæsthetic substance. Under these latter circumstances especially, eucaine "B," less toxic, has important advantages.

Treatment of Pyorrhoea Alveolaris.

By Ernest Sturridge, D.D.S.

The treatment of pyorrhœa alveolaris is a subject of great importance to us all. This disease in its many forms and stages is frequently brought to the notice of every dental practitioner. Whilst the theories as to its etiology, pathology, and treatment are very numerous and conflicting, there are certain points on which most authorities are agreed, and amongst these the important part which salivary calculus and micro-organisms play in the disastrous results of this disease are fully understood. Every one in the profession has had his share of disappointment in the employment of the best methods known to us in its treatment, and whilst no set course of treatment has been recognized generally as absolutely sure in its effect, the enormous amount of research and literature on the subject brings us at the present time much nearer satisfactory results.

When inflammation has extended to the peridental membrane, and pus infection has taken place, the course of treatment obviously lies in overcoming the lesions. The surrounding membranes should not be injured in the removing of calcareous deposits usually found below the gingival margin, and it is essential to so apply antiseptic disinfectants that every part of the pyorrhœa "pockets" shall be thoroughly cleansed, and the micro-organisms completely destroyed.

The usual methods of carrying out this operation are defective, inasmuch as the application of antiseptics used to destroy bacteria cannot be relied upon, and good results will not be attained so long as microbes infest the affected parts.

Recent discoveries in cataphoresis, and the many improvements in batteries, current controllers, and cathodes, place at our disposal a means of treating pyorrhœa alveolaris by electro-medicamental diffusion, which is most effective. By it we are able to completely diffuse into the affected tissues medicines which we know will destroy microbes, and at the same time stimulate the broken down tissues to repair themselves.

A curtailed description of this method of treatment by cataphoresis is as follows:

First, remove all calcareous deposits about the necks of the affected teeth, being careful not to injure the inflamed tissues, and then syringe out the pyorrhœa pockets with peroxide of hydrogen ($H_2 O_2$), or some

weak antiseptic solution. With a firm nerve-broach, wrapped with cotton wool, wipe out the pockets with the following:

R. Carbolic acid, min. xx.
Iodoform, grs. ij.
Euthymol, min. x. M. Ft. Sol.

Rinse out the mouth to prevent burning, and, with a napkin in the mouth, surrounding about six teeth at a time, make them dry, and apply the antiseptic solution with which you intend to destroy the germs on shreds of cotton wool, wrapped loosely around the teeth and going under the gums. The battery being ready and the patient holding one pole, begin cataphoresis with a fine pointed cathode, using the minimum number of cells; gradually increase the current until a slight sensation is felt by the patient; at this strength of current pass the electrode, which is held in contact with the moistened cotton, up under the gum to the bottom of the pockets and around the loosened teeth on every side. The solution is gradually absorbed by the tissues, and fresh cotton saturated with it can be applied when necessary. The current is kept on for about twenty minutes on the six teeth, during which time a great deal of medicine will be absorbed. A useful mixture for electro medication is as follows:

R. Euthymol, min. xxx.
Sanitas Ol, min. v.
Iodine gr. ij. M. Ft. Sol.

On removing the electrode and cotton in use, the necks of the teeth are touched with some astringent, and finally the gums are painted with a mixture of equal parts of tincture of aconite root and tincture of iodine. This treatment should be repeated at intervals of a few days, until the tissues become quite healthy and the teeth firm.—British Journal Dental Science.

A Text Book of Dental Pathology and Therapeutics Including Pharmacology.

Being a Treatise on the Principles and Practice of Dental Medicine. For Students and Practitioners.

By HENRY H. BURCHARD, M.D., D.D.S.,
Special Lecturer on Dental Pathology and Therapeutics in the Philadelphia Dental College.
Illustrated with 388 Engravings and Two Colored Plates.
Publishers, Lea Brothers & Co., Philadelphia and New York, 1898.

The success achieved by the American text books of Prosthetic and Operative Dentistry, edited by Profs. Essig and Kirk, left more noticeable the need of a work on Dental Pathology, that would compare favorably with these two volumes. While it is true that there are books purporting to be text books on this subject, they are such a "hodge podge," without method or system, as to be wholly unsatisfactory for educational purposes. The vast amount of work which Dr. Burchard bestowed upon different portions of the two volumes mentioned and the able manner in which it was accomplished, was a fair indication of what would be found in this volume. Our expectations have not been disappointed. The work will remain as an enduring monument to the ability of the author, and will unquestionably be at once adopted as the standard text book on this subject.

It is compiled in a systematic manner; the definitions are terse in language that is easily understood, and the entire volume is remarkably free from redundancy of matter and unnecessary verbiage. We can say no more of the illustrations than that they are on a par with those presented by the publishers in the preceding volumes.

Scientifically considered, Dr. Burchard presents to the student the very latest results of scientific research. He recognizes the debt which the profession owes for life long investigations to Profs. Black and

Miller, as well as to Dr. Williams. The volume commences with a section devoted to general Pathology, explaining general principles and affording a basis of the study of disease; he gives an epitome of bacteriological work, disturbances of nutrition, atrophy, degeneration, necrosis, hypertrophy, tumors, disturbances of the vascular system, inflammation, suppuration, abscess, fevers, septicaemia and pyemia. It is absolutely essential for the dental student to understand the relationship which these subjects bear to the general anatomy before he can rationally take up the study of their local bearing to the stomatological field.

The next section is devoted to the development and structure of the jaws and teeth and their surgical anatomy, dentition and its attending disorders, etc. Then follows in due sequence the varying list of affections of enamel and dentine. This in turn is followed by diseases of the dental pulp. Section V. takes up diseases of the pericementum, and is unquestionably the most scientific work which we have at the present time on this interesting topic. This is followed by chapters on diseases of the deciduous teeth, reflex disorders of dental origin, infections of and from the mouth, and sterilization. Section VII. is devoted to dental pharmacology and pharmacopœia.

It is impossible in a notice of this kind to do full justice to this work. The author has announced a few pathological axioms which it would well repay the busy practitioner to study and apply. In this respect, attention might be called to what he says of absorption during digestion of the organic poisons formed by the action of bacteria. The role which this pathological condition plays in nutritional disturbances has only recently been appreciated and its connection with the etiology of pericemental disturbances must be fully grasped by the practitioner who expects to successfully treat such disorders. In this way, he deduces the fact that year by year the number of diseases, known as constitutional, which, however, can be traced to local sources, becomes greater. The author is a firm believer in the lack of vitality in enamel, and draws especial attention to the differences in fragility of enamel both as regards individuals and conditions. In this connection, the following quotation is noteworthy. Speaking of enamel: "Its resistance is much greater in teeth in which the tooth pulp has been devitalized and removed and the canals filled under aseptic precautions, with absolute exclusion of saliva, than when the saliva is permitted free entrance into the interiors of the teeth." In speaking of prophylaxis of caries, the author very justly calls attention to the injurious effects of sweetening dentifrices with sugar as well as the use of honey and glycerine in tooth paste, causing, as they do, a rapid evolution of lactic acid.

It would be remarkable if one should agree with all the views of an

author on a topic inviting so much divergence of opinion as does pathology, whether general or special. We may, therefore, express a decided opposition to the preference of the author for the use of arsenious acid in devitalizing pulps, instead of desensitizing them by means of cocaine cataphoresis, and then immediately removing them. That the author should cling to this antiquated doctrine is more remarkable because he dwells at some length on the ill effects and dangers resulting from the use of arsenious acid, notably the suffusion of the dentine from sudden thrombosis, possibilities of severe pericemental inflammation, etc., dangers of necrosis following its use in teeth where resorption of the root has taken place (unknown to the operator), etc.

Speaking of pyorrhea alveolaris, the author makes a dogmatic assertion which seems never to have been disputed. "The disease ceases spontaneously with the loss of the teeth, the resorption, the loss or atrophy of the alveolar wall being arrested at any period of the disease, if the affected tooth be extracted." While this has always been accepted as a fact, there are a large number of cases of varying forms of pyorrhea which in our opinion, positively contradict this well worn assertion. Something more than a dogmatic statement is required to carry weight with this statement against clinical observations which seem to disprove it.

No subject in the entire volume is handled in a more masterly manner than the one involving the articulation of the teeth in the alveoli and the pathological conditions encountered in this region. While we might cavil at the lack of attention which the author gives to the great value of permanent splints in the treatment of very unstable teeth, when introduced so as to be no interference with the hygienic condition of the oral cavity, yet as a whole this section is masterly, scientific and up to date. To those who are interested in the study and treatment of pyorrhea alveolaris, this large section of the book will be found invaluable.

M. L. R.

Irregularities of the Teeth and their Correction.

By JOHN NUTTING FARRAR, M.D., D.D.S.

In the review of this admirable book, which appeared in our last issue, a mistake unfortunately occurred, the words "more than" having been omitted from a quotation, and in this manner Dr. Farrar is made to say what he really did not say. The following is the correct reading:

"When the first molar has been extracted it becomes necessary to use the second and third molars for anchorage to move back bicuspids; but they should not be drawn upon for moving more than one tooth at a time, and even then these anchor teeth should be frequently examined to prevent too great inclination forward."

A Compend of Dental Pathology and Dental Medicine.

By Geo. W. Warren, A.M., D.D.S.

Chief of the Clinical Staff, Pennsylvania College of Dental Surgery Philadelphia: Editor Richardson's "Mechanical Dentistry," etc.

Third Edition, Illustrated.

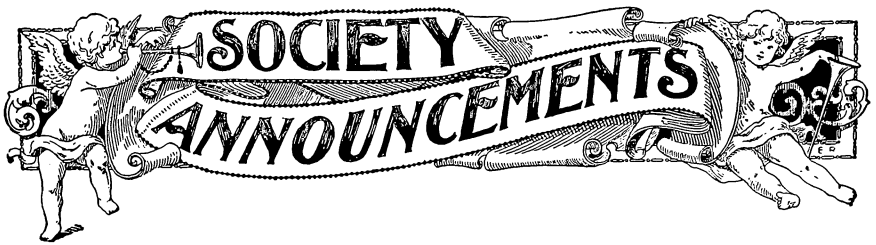
Publishers, P. Blakiston, Son & Co., No. 1012 Walnut St., Philadelphia.—1898.

The appearance of a third section of this Quiz Compend is a satisfactory proof that it supplies a demand in the student's library, and that it is a book which he can ill afford to overlook. While it may be a mooted question among teachers whether such aids as these are valuable or harmful to the general student, if we take the broad ground that they can only be injurious to those who can never be properly fitted for professional work, none can serve its purpose more thoroughly than this little book by Dr. Warren. The illustrations are a valuable adjunct and the admirable photograph of an immature maxilla makes the brochure a valuable addition to the general library. M. L. R.

Dr. E. Hovey.

Dr. E. Hovey died about ten o'clock P. M., Tuesday, April 19th, at his home, No. 321 Hovey avenue, Springfield, Mo., after an illness of a week.

Dr. Hovey was born in Trenton, Oneida County, New York, September 23, 1816. He was the son of Eleazer and Sybyl (Coburn) Hovey. They moved to Indiana in 1820, where his father died. In 1826 his mother moved to the northeastern portion of Ohio. Dr. Hovey received his education at the common school, but acquired most of it by his own exertion. He went to Texas County, Mo., in 1840, and worked at the millwright's trade for ten years. It was there he studied dentistry, and afterwards studied medicine, and practiced them in conjunction at Buffalo, Dallas County, Mo. He soon abandoned medicine and made dentistry his specialty. He belonged to the Missouri State Dental Association, having joined in 1865. The doctor was well posted in his profession, and was at one time offered a chair in one of the St. Louis dental colleges. He went back to Ohio and remained a few months in 1850, but soon returned to Missouri, and entered into partnership with his old preceptor at Buffalo, Dallas County. He practiced until the war commenced, and was elected Lieutenant Colonel of a regiment of home guards raised in Dallas County. He went to Springfield in 1862, and his family followed in 1863. He practiced his profession in Springfield until the war closed, then on account of failing health, he sold out to his partner and returned to his home in Dallas County, Mo. He lived there for fourteen years, and went back to Springfield in 1880. He married the first time in 1836 in Ohio to Miss Evelina Abell. This marriage was blessed with two children, Mrs. Julia A. Colby and Mrs. Ellen Lewey, formerly of Marshfield. His first wife died on a steamboat at Louisville, on their way back to Ohio, and is buried at that city. In 1848 he was married again to Miss Caroline E. Penniman, of Ohio. By her he had three children, viz., Eva Celestia, Romeo Hamlet and Charles Eugene. He was of Scotch descent on his mother's side, and German upon his father's.



Omaha!

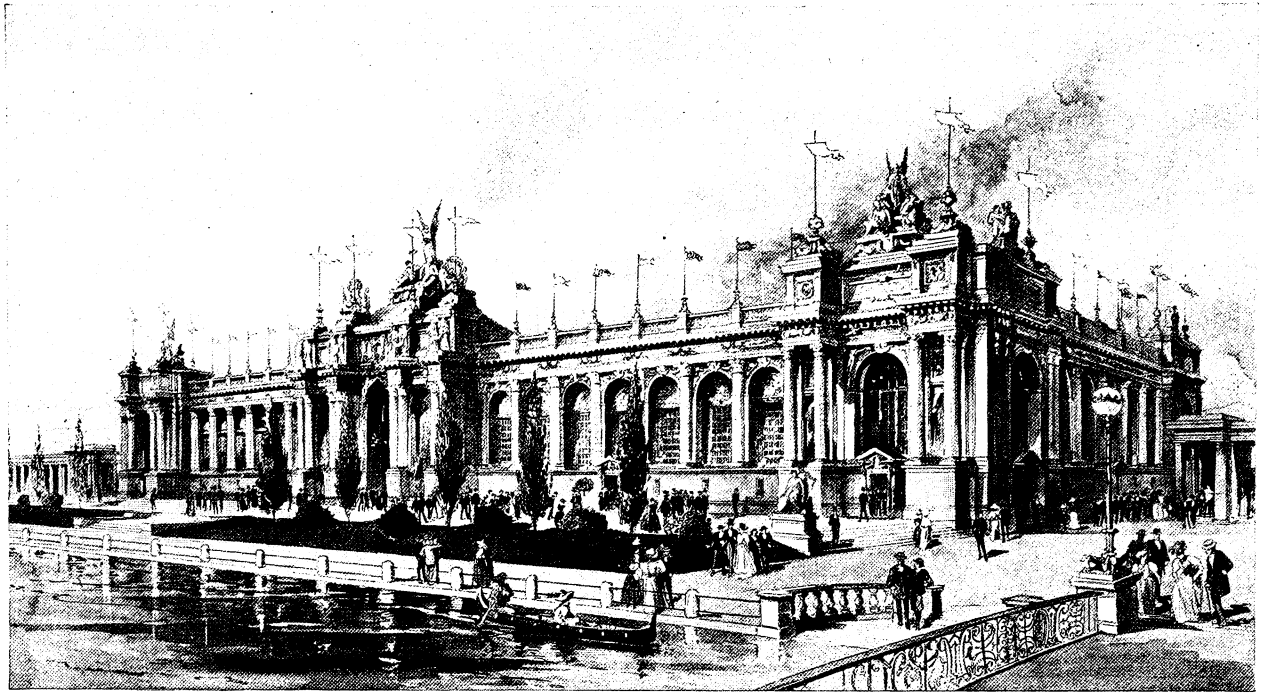
Meeting of the National Dental Association.

As the National Dental Association meets in Omaha Tuesday, August 30, and succeeding days, it is to be hoped that a large attendance will make this first regular meeting of our national body a great success. As an inducement to men living in distant sections of the Union to make this journey, it seems wise to publish a few facts concerning the Exposition which is to occur in Omaha this summer. From the announcements of the committees in charge it is evident that this affair is to assume a magnitude little dreamed of in the East and South. Indeed, it is certain that this Exposition will rival that of Chicago, and no one who can arrange to be there should permit himself to be absent.

Originally projected to display the products, manufactures and industries of the States west of the Mississippi River, the scope of the Trans-Mississippi and International Exposition has expanded until no less than thirty-five States have organized for active participation. Every State and Territory in the Union will have a place, either among the collective exhibits or in the group of State buildings. As its name implies, the Exposition of 1898 will be essentially representative of the trans-Mississippi region, and will for the first time fully illustrate the wealth-producing power and the extent of productive industries of the Greater West.

Agriculture.

The design of the Agricultural Building shows a richness of ornament almost to redundancy, which not only gives it the character of an exposition build-



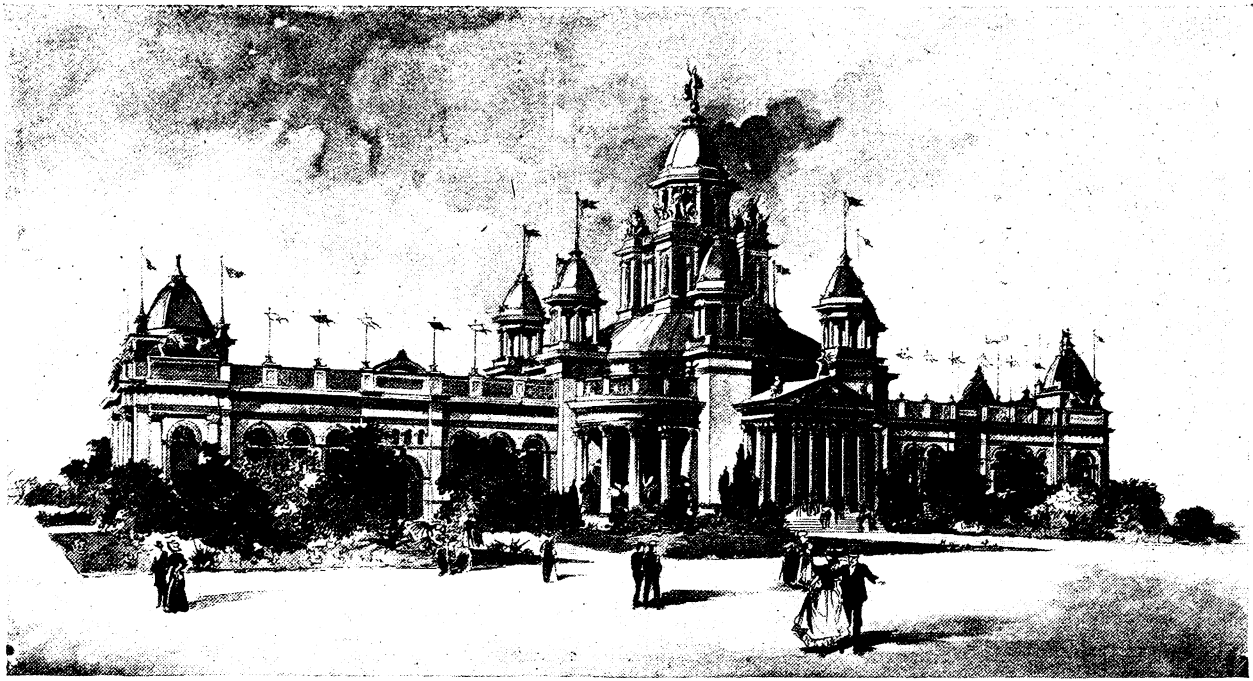
AGRICULTURE BUILDING.

ing, but suggests the wealth and abundance derived from agriculture. Rich and brilliant color is an important element in the design. This color is applied to the loggias and on the plain wall surfaces, leaving the arches, columns and main architectural parts to stand out in simple, strong masses, having no color themselves but relieved against the colored background. This color treatment produces a beautiful and brilliant effect, whether seen under brilliant sunlight with the strong shadows falling across it, or in half-lights late in the afternoon, reflected in the lagoon or half concealed by the projections of the buildings, as it is seen in the perspective. While the building is of Renaissance or classic type the decorations and ornament will be entirely modeled from agricultural products—festoons of corn and other cereals, and even the common market garden products are given proper place in this decoration. The great semi-circular niche forming the main entrance will be richly decorated in this way in color, and on either side of it there will be figures representing the "Digger" and the "Sower," taken from Millet's famous paintings, supported on either side by lesser figures and the arms of the State and nation. At each side of the great central arch will be recessed niches with rich color decoration, and crowning this central composition will be three sculptured groups, those on either side representing the zodiac and the seasons, while the central figure, crowning the whole composition, will represent "Prosperity," supported by "Labor" and "Integrity." At the corner pavilions there will be figures representing the seasons and the favorable winds, and inscriptions relating to the subject of agriculture. Names of those who have been patrons of agriculture or who have made notable inventions in this field of labor will be inscribed upon the panels in the frieze.

Horticulture.

Placed in the Bluff tract, the Horticulture building is a magnificent central feature, around which will be clustered the various State buildings and some amusement buildings. It is 130x310 feet in dimensions and 160 feet to the top of the belfry, which will contain the chimes. The building is to house the floral, fruit and forestry exhibits and is admirably adapted for the purpose, the high dome, covered with glass, permitting the exhibition of the tallest ornamental plants. In the center of the dome will be placed the crystal cave in a pyramid of rocks covered with mosses and flowers and down the sides of which will trickle countless little streams to the pool below. This pool will be surrounded by a double colonnade with vaulted arches, forming a grand circle.

Unrestricted as to motif, form or surrounding, the architect has succeeded in producing a building singularly striking in its splendid masses, effective features and excellent grouping. While a classic motif has been



HORTICULTURE BUILDING.

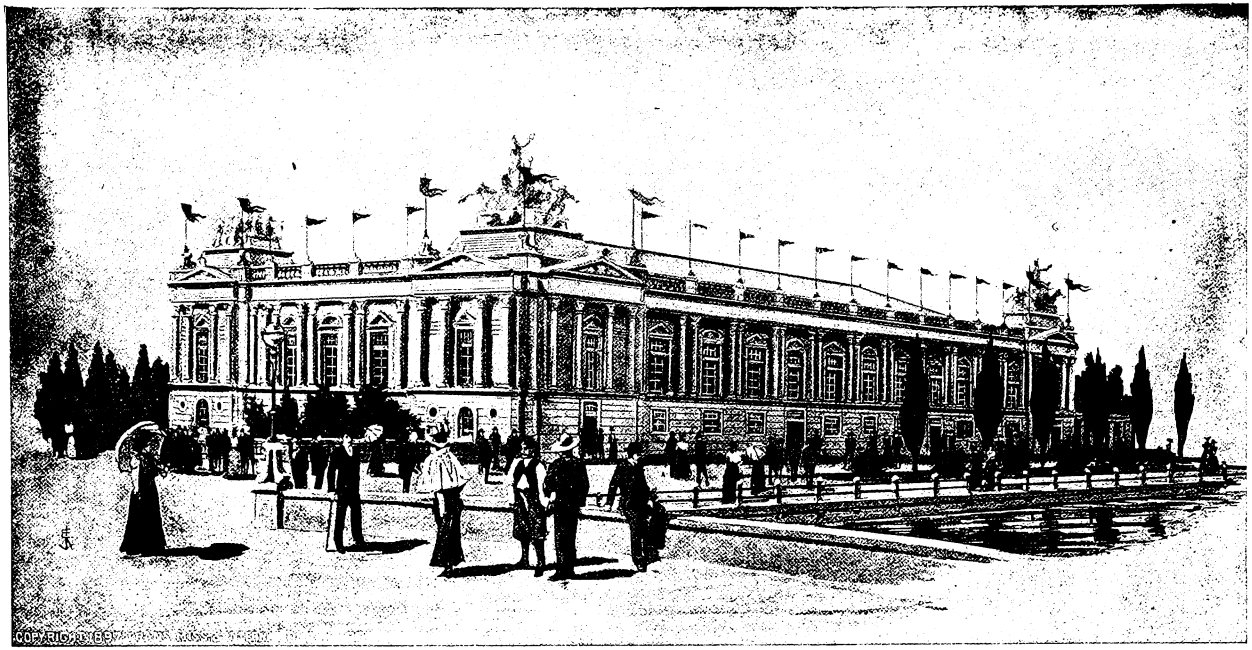
adopted, it has been handled with an unconventional freedom that gives to the whole a rich oriental effect. The basis of design is the chaste Ionic. The details are modeled from flowers, fruits and foliage.

On either side of the stately central entrance are towers, or rather mosque-like minarets. This feature is reproduced on four sides, forming an octagon from which springs the dome. Between these minarets are placed circular colonnades, surrounded by statuary emblematical of the seasons. Above the dome is an open observatory balcony from which can be obtained a grand view, not only of the Exposition grounds, but of the city and adjacent lakes, the picturesque valley of the mighty Missouri, and the lovely city of Council Bluffs five miles away. Above this open balcony is the belfry. At the ends of the wings are octagonal-roofed pavilions in harmony with and emphasizing the general form of design. The wide frieze is beautifully ornamented with cupids, in riotous reveling amid fruits and flowers. On either side of the main entrance, on high stylobate, are placed groups of statuary representing "Night" and "Morning," festooned, the one with morning glory and the other with night blooming cereus. The building will be profusely decorated with flower urns, hanging baskets, and ornamental plants of every description from semi-tropic climes. The execution of the design and scheme is original and the grouping of features, with their exquisite detail, will make this one of the finest buildings of its character ever erected.

Liberal Arts. The design of the Liberal Arts Building is of the French Renaissance school of architecture, harmony and proportion being regulated by the conditions of the other main exhibit buildings in the Grand Court. The Liberal Arts Building is located on the south side of the Grand Canal, near the Arch of the States. The exterior presents the appearance of two stories, the first story or stylobate being low in treatment, with small windows cut into a plain wall surface. The second story is enriched by Corinthian columns, set in pairs with ornamental windows between, and the top of the building is finished with an open balustrade which adds to the general effect.

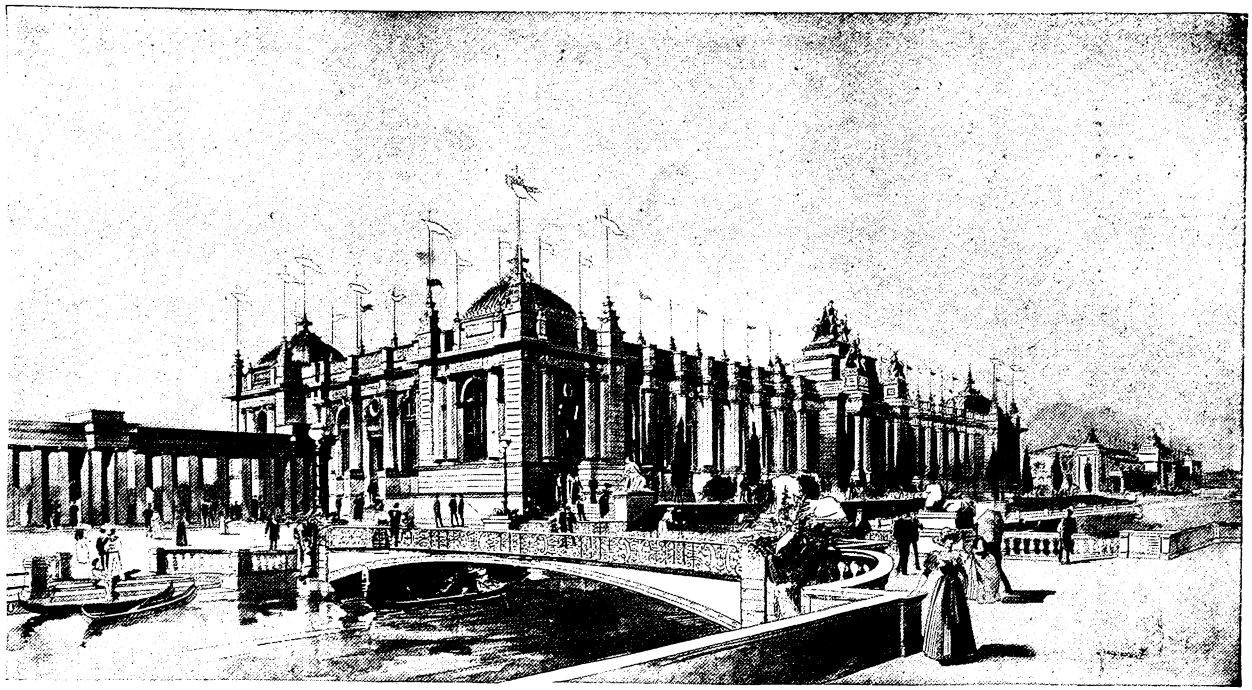
At each corner of the building are pavilions with ornamental pediments projecting sufficiently from the main line wall to show a strong corner treatment.

Above the pediments at each corner of the building are octagonal bases on which will be set groups of statuary. Each group will be composed of four heroic figures; the main one representing the Liberal Arts will be supported by two kneeling figures suggesting industrial art, while in front of all will be a smaller figure supporting a shield on which the attributes of pottery and wrought-iron will be inscribed. An uninter-



LIBERAL ARTS BUILDING.

FINE ARTS BUILDING.



MANUFACTURES BUILDING.

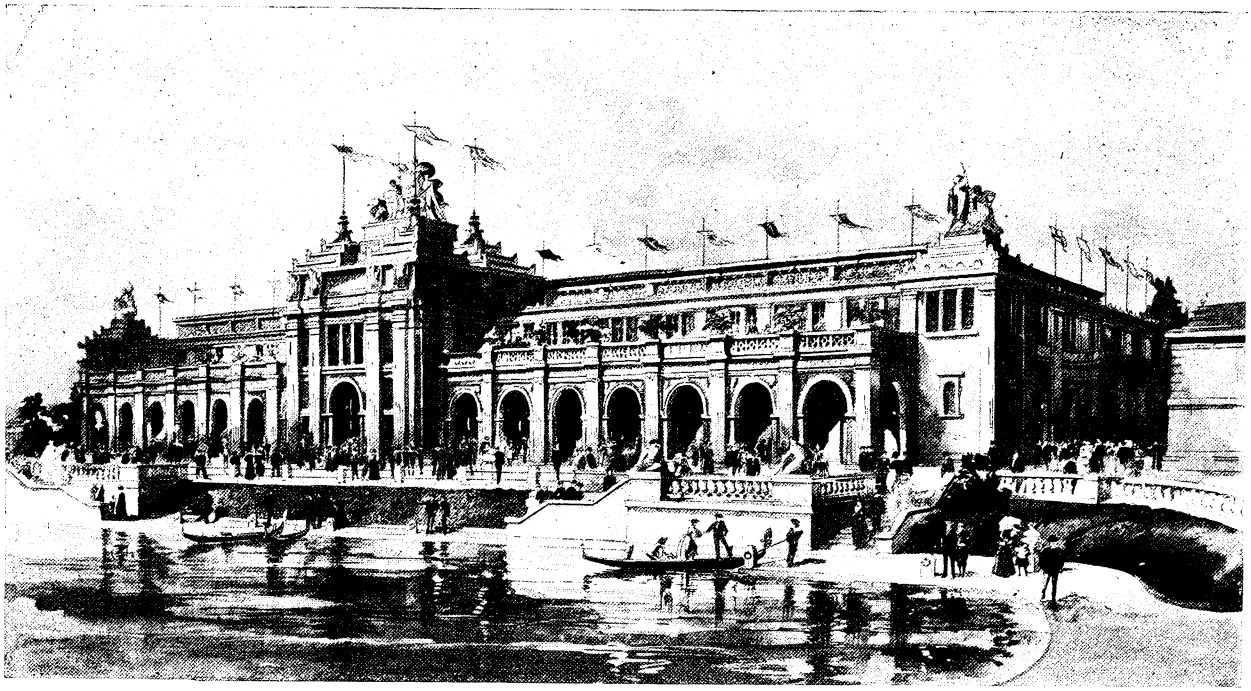
rupted line along the entire front is preserved by the aid of the color treatment between the pavilions.

Fine Arts. Facing the Plaza directly inside the main entrance is the Fine Arts Building, in shape a parallelogram 246 feet long and 130 feet wide, the long axis parallel to the Grand Canal. It consists of two separate, symmetrical, domed buildings, connected by a peristylium or open court surrounded by colonades. The building rests on a balustraded terrace, and is approached from the Plaza by flights of steps, and also from the avenue bordering the canal, between it and the building. One enters through the portico and vestibule to the dome, central for each building and lighted from the top, forming a suitable place for the effective exhibition of statuary. Surrounding this central feature are the galleries, all lighted by skylights, and so arranged as to afford the greatest degree of wall surface for the display of pictures and to allow for the proper circulation of visiting crowds. The two separate buildings offer a better opportunity for the classification of material and at the same time, bring the scale of the architecture to its proper relation with the surroundings and in accord with the general scheme of the Exposition grounds. The colonnade connecting the two parts forms an effective architectural feature, conspicuous from the canal and opposite avenue, and affords a place for the instalment of architectural fragments and models, which cannot be so effectively arranged inside the walls.

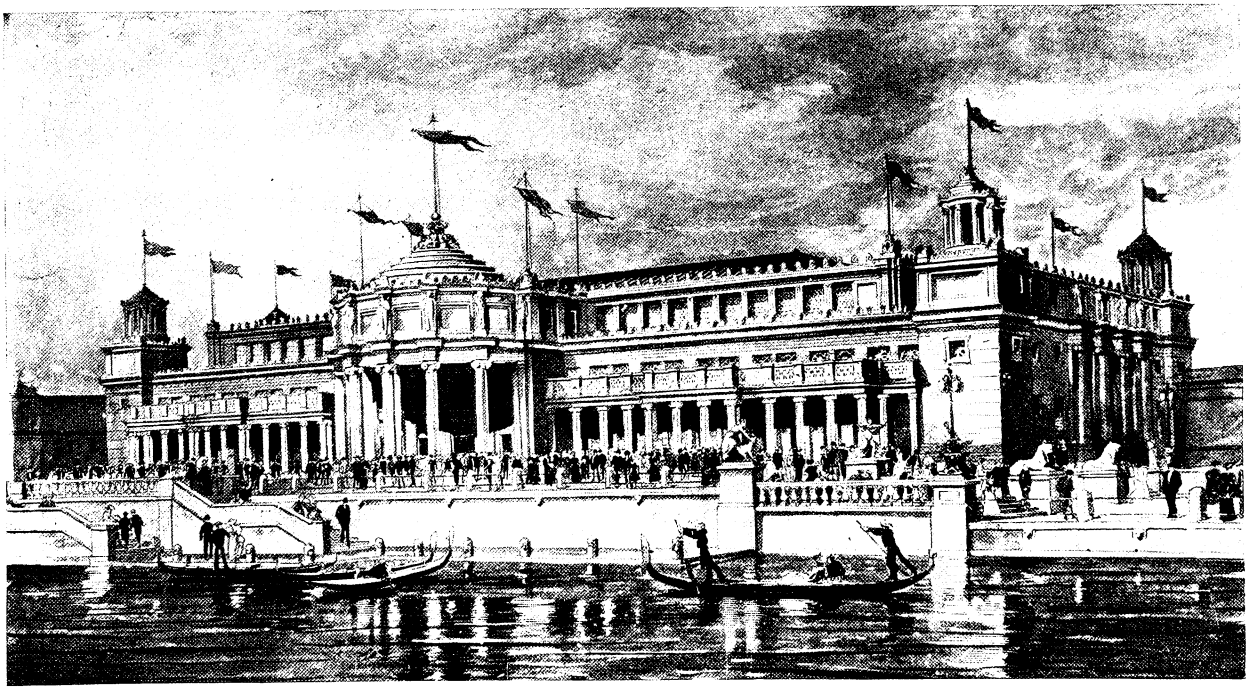
Manufactures. The Manufacturers Building, designed by John J. Humphreys, of Denver, is a handsome structure of the Doric order, modified to comport with nineteenth century requirements. The result is a building of simple dignity, having an air of repose considered requisite in a large building.

Machinery. The Machinery and Electricity Building is 304 feet front by 144 feet in depth. There are triple entrances on the main floor level in the center of the main front, and similar groups in the centers of the east and west fronts, with four emergency exits in the north wall. In front of the building, flanking both sides of the main entrance, is an open portico sixteen feet wide, running the entire front of the building. The center entrance feature projects beyond the portico, thus forming the grand entrance vestibule.

Mines. The Greek Ionic style of architecture characterizes the Mines Building. The order is of heroic proportions, carried out with great artistic care in every detail. The principal feature of the lagoon facade is a circular dome 150 feet in circumference, rising to a height of 75 feet. The dome is sup-



MACHINERY AND ELECTRICITY BUILDING.



MINES AND MINING BUILDING.

ported on a circular row of fluted Ionic columns, and the space enclosed by them and under the dome is open, forming a grand, open, domed vestibule for an approach to the building. The inner dome is richly designed with ribs and panels and is to be decorated in colors, while the outer is formed by a series of steps rising in the form of a cone to apex, which is crowned by a richly decorated base for a flagstaff. The outer row of dome columns is detached and the entablature is broken around them at the base of the dome, and over each column is a statue and pedestal having as a background the stylobate of the dome.

A STREET IN CAIRO.

Amusements. In the amusement section will be found an abundance of unique and wholesome attractions. The Department of Concessions has put a premium upon novel and meritorious show features, and the immense area lying north and east of the Main Court will be devoted to the mirth-provoking scenes of the Midway. The foreign villages will present picturesque types of architecture and will be peopled by natives of the countries represented, while articles manufactured by them will be on exhibition. The Moorish Village will be one of the most extensive and faithful reproductions of Eastern life yet attempted. The Afro-American Village will depict life

among the negroes of the South. The Chinese Village will prove an attractive novelty to those who study the doings of this ever entertaining people. The German, Irish and Tyrolean villages, as well as the Streets of Cairo, will be in evidence and a concession which is called Cosmopolis will illustrate the life of the Greek, the Spaniard, the Italian, the Frenchman, and the inhabitant of the Isle of Malta. Among the novel exhibits, is the smallest train in the world, operating daily on its own track, each tiny car just large enough to seat two children; the Baby Incubator, an invention designed to assist nature in preserving the lives of weaklings; Cyclorama of the Monitor and Merrimac Encounter, a Vaudeville theatre, Hagenbeck's Trained Animals, Wild West Show, Scenic Canal, Old English County Fair, Crystal Cave, Reproduction of Old Faithful, Largest Soda Fountain in the world, Shooting the Chutes, Night and Morning, moving picture feature, etc., etc., and a number of other superior attractions whose allotted space will aggregate 1,000,000 square feet.

Pennsylvania State Dental Society.

The Executive Committee desires to announce that on account of circumstances over which they had no control, the place of holding the annual meeting has been changed from Cresson to Ebensburg.

The Committee feel that in selecting the latter place they have acted wisely. Ebensburg is the county seat of Cambria County, and is a most delightful old town, located on the summit of the Allegheny Mountains, and readily accessible via Pennsylvania Railroad and Cresson. Headquarters will be at the Maple Park Springs Hotel, and the meetings will be held in the Court House.

Annual Session, July 12th, 13th and 14th.

I. N. BROOMELL,
Chairman Executive Committee.
302 N. Fortieth Street, Philadelphia, Pa.

Maine Dental Society.

The thirty-third annual meeting of the Maine Dental Society will be held in Portland, Me., on Tuesday and Wednesday, July 19th and 20th, 1898.

H. A. KELLY, Secy.,
609 Congress Street, Portland, Me.

North Dakota State Board of Dental Examiners.

The next meeting of the North Dakota State Board of Dental Examiners will be held at Fargo, No. Dak., July 12th and 13th; and a meeting for the reorganization of the State Dental Society immediately following, on the 14th and 15th.

A Change of Place of Meeting for the Missouri State Dental Association.

The thirty-fourth annual meeting of the Missouri State Dental Association will convene at the Planters House, St. Louis, Mo., July 5-8th, 1898.

All dentists practicing in the State who are not members of the Association and wish to become such, and dentists of other States, are cordially invited to attend. When purchasing your railroad ticket remember to secure certificate from ticket agent so that rebate can be secured on return ticket. A large attendance is anticipated and we are assured of a profitable meeting.

All dealers who desire to make exhibits can secure space by writing the Planters House.

The change of place of meeting from Merrimac Highlands to the Planters, is caused by the failure of the Highlands to open this season.

H. H. SULLIVAN, Secy.,
Kansas City, Mo.

New Jersey State Dental Society.

In the June ITEMS a notice appeared in regard to exhibitors, and the dates were incorrectly stated as from July 21st to 23d inclusive; whereas, the meeting is to be held from July 20th to 22d inclusive.

All those interested will please note correct dates as given above.